

**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF OHIO  
EASTERN DIVISION**

**IN RE: OHIO EXECUTION  
PROTOCOL LITIGATION**

**This document relates to:  
PLAINTIFF CLEVELAND  
JACKSON**

**Case No. 2:11-cv-1016**

**CHIEF JUDGE EDMUND A. SARGUS, JR.  
Magistrate Judge Michael R. Merz**

**Expert Report of Dr. David J. Greenblatt, M.D.**

I, David J. Greenblatt, under the penalty of perjury, declare the following to be true:

1. My name is David J. Greenblatt, M.D. I am the Louis Lasagna Endowed Professor in the Department of Immunology (formerly the Department of Pharmacology and Experimental Therapeutics) at Tufts University School of Medicine in Boston, Massachusetts. I am also a Professor of Psychiatry, Medicine, and Anesthesia at Tufts University School of Medicine. I am also appointed to the Special and Scientific Staff (Research) at Tufts Medical Center in Boston, Massachusetts. I am a Board-certified clinical pharmacologist, a professor, and an investigator in basic and clinical pharmacology. The factual

statements I make in this declaration are true and correct to the best of my knowledge and experience.

2. I have been asked by counsel representing inmate Cleveland Jackson to provide opinions related to the lethal injection execution protocol employed by the State of Ohio and the alternative lethal injection execution protocols that Mr. Jackson has alleged in his motion for preliminary injunction and stay of execution.
3. I previously provided an expert report (ECF No. 1956), an amended expert report (ECF No. 1976-3), an expert rebuttal report (ECF No. 2003), and hearing testimony (ECF No. 2113, PageID 104162–263) in the above-captioned case on behalf of Plaintiff Warren K. Henness. I stand behind the opinions expressed in those reports and my testimony, and adopt them and incorporate those reports and testimony here in full for the purposes of this report as well.
4. In preparing this updated report and reaching the expert opinions contained herein, I again incorporate the materials I previously reviewed for my previous reports, and I have also reviewed, among other materials, the following:
  - 1) The Brief of State Appellees, *Henness v. DeWine*, 6th Circuit Case No. 19-3064, Doc. No. 33
  - 2) Decision and Order On Motion for Stay of Execution and Preliminary Injunction, ECF No. 2133

- 3) Plaintiff Jackson's Second Amended Individual Supplemental Complaint, ECF No. 2227
- 4) Plaintiff Jackson's Amended Motion for Stay of Execution, Preliminary Injunction, and Evidentiary Hearing, ECF No. 2242
- 5) Autopsy report from autopsy of Donnie Johnson, executed by the State of Tennessee on May 16, 2019
- 6) Autopsy report from autopsy of Dominique Ray, executed by the State of Alabama on February 7, 2019
- 7) A compilation of documents entitled Articles Describing Midazolam Executions (2019)
- 8) A video of a press conference following the Donnie Johnson execution at which witnesses recounted their observations, available at <https://www.facebook.com/newschannel5/videos/tennessee-execution/297932371149654/>
- 9) A certified transcript of the Johnson press conference
- 10) Lethal Injection Chemical Administration Record and Chemical Preparation Time Sheet for Johnson execution
- 11) Lethal Injection Chemical Administration Record and Chemical Preparation Time Sheet for Irick execution
- 12) Bloomfield SS, Tetreault L, Lareniere B, Bordeleau JM., A method for the evaluation of hypnotic agents in man. The comparative hypnotic effects of secobarbital, methaqualone and placebo in normal subjects and in psychiatric patients, J Pharmacol Exp Ther. 1967;156(2): 375-382
- 13) Dobos JK, Phillips J, Covo GA. Acute barbiturate intoxication. JAMA. 1961;176:268-272
- 14) Epstein LC, Lasagna L., A comparison of the effects of orally administered barbiturate salts and barbiturate acids on human psychomotor performance. J Pharmacol Exp Ther. 1968;164(2): 433-441
- 15) Glare PA, Walsh TD. Clinical pharmacokinetics of morphine. Ther Drug Monit. 1991;13(1):1-23

- 16) Greenblatt DJ, Allen MD, Harmatz JS, Noel BJ, Shader RI. Overdosage with pentobarbital and secobarbital: assessment of factors related to outcome. J Clin Pharmacol. 1979;19(11-12):758-768
- 17) Hadden J, Johnson K, Smith S, Price L, Giardina E. Acute barbiturate intoxication. Concepts of management. JAMA. 1969;209(6):893-900
- 18) Mattu A, Martinez JP, Kelly BS, Modern management of cardiogenic pulmonary edema, Emerg Med Clin North Am. 2005;23(4):1105-1125
- 19) Perina DG., Noncardiogenic pulmonary edema, Emerg Med Clin North Am. 2003;21(2):385-393
- 20) Urbach KF., Hypnotic properties of amitriptyline: comparison with secobarbital, Anesth Analg. 1967;46(6):835-842
- 21) Any other source cited in this report.

#### **BACKGROUND AND EXPERT QUALIFICATIONS**

5. My professional qualifications are fully expressed in my curriculum vitae appended to this report. Brief highlights include those mentioned in my previous expert reports submitted in this case, incorporated here as well.
6. Additional, more recent highlights include the following.
7. I have been teaching and doing research in basic and clinical pharmacology since beginning prior to completing my residency after graduating from Harvard Medical School in 1970, and ongoing to the present.

8. I have been employed in a variety of positions at Tufts University School of Medicine in Boston, Massachusetts, and its affiliated hospital, Tufts Medical Center, since 1979. During that time, I have been a professor at the medical school in several departments, including Psychiatry, Medicine, and Anesthesia, as well as the Department of Pharmacology and Experimental Therapeutics (now the Department of Immunology). I have held academic appointments as a faculty member, teaching and doing collaborative research within those departments. I am also Board-certified in Clinical Pharmacology.
9. In my current position, I remain the Louis Lasagna Endowed Professor at the Tufts University School of Medicine. The late Dr. Louis Lasagna is considered the father of clinical pharmacology, and the medical school holds an endowment in his name. It is significant credential within academia to have been named the professor receiving that endowment.
10. Over the course of my career, I have been recognized with numerous awards and honors, as listed in my previous report.
11. My current work continues to be a combination of research, teaching, and training. My research involves both clinical research on human volunteers, and the fundamental scientific research on molecular pharmacology and the function of drug-metabolizing enzymes. I also

train graduate students who are pursuing a Ph.D. or master of science in pharmacology and experimental therapeutics. I also teach students in the medical school who are planning to become physicians, or students pursuing a Master of Science degree in biomedical science, which involves traditional classroom teaching as well as one-on-one instruction.

12. In addition to these professional responsibilities, I also carry administrative responsibilities as well. I also serve on the editorial board of a number of peer-reviewed journals. I am the editor-in-chief of two such journals. The first is the Journal of Clinical Psychopharmacology, which is also edited by Dr. Richard I. Shader, one of my colleagues. The second journal is called Clinical Pharmacology in Drug Development. I am the sole editor-in-chief of that journal. In addition, I serve on the Editorial Boards of several other peer-reviewed journals, including: Journal of Clinical Pharmacology; Biopharmaceutics and Drug Disposition; Xenobiotica; Neuropsychopharmacology (1986-1990); Drug Investigation; Drugs and Aging; Pharmacology and Toxicology; and Drugs and Therapy Perspectives. At Tufts University, I am Director of Admissions for the Graduate Program in Pharmacology and Drug Development. I serve on the Medical School Admissions Committee, the Radiation Safety Committee, and the Basic Science Appointments, Tenure, and Promotions Committee.

13. Peer-reviewed scientific journals require rigorous review of proposed research studies, papers, or reports, conducted by multiple, anonymous reviewers. Those submitted manuscripts would be sent back to the authors with commentary about the needs for revision, after which the works are resubmitted. This review sets a high bar for scientific research before it is published.
14. Over the course of my career, I have had approximately 800 original research articles subjected to the peer-review process and published. The first of those was published in 1967, while I was still in medical school. I continue to publish original research articles to this day. I have published at least three additional original research articles since my initial report submitted in this case in October of 2018, bringing my current total to 786 articles.
15. In addition, I have had more than 100 Editorials and Responses to published works that were, themselves, published, including at least four such additional publications since my October 2018 report in this case. I have also published approximately 174 Book Chapters and Reviews, most of which were also peer-reviewed, including one such additional publication since my October 2018 report in this case. I have also authored, solo or with co-authors, at least 12 books.
16. Google Scholar is a method of analysis of publications and how frequently they are cited by other scholarly works. Google Scholar

uses the information in the National Library of Medicine run by the National Institutes of Health, which also runs an indexing service called PubMed. That data is then turned into what is called a Google Scholar Citations Index score, which means the number of citations in other published scholarship to works that the individual has authored or co-authored.

17. In my field, the Google Scholar Citations Index for any particular citation is relied upon to identify key articles or other works. By extension, if a scientist has developed a Google Scholar Citations Index public profile (a very easy and free task), the scientist's scores can also serve as a helpful proxy for the level of a scholar's expertise, experience, credibility, and influence within one's field. In my October 2018 report in this case, my Google Scholar Citations Index was 65,726. As of the date of this new report, my Google Scholar Citations Index was 67,339.
18. The h-index is another way of assessing citations through Google Scholar. An "h" number is the largest number h such that h publications have at least h citations. So, for instance, an h-index of 50 means that a scholar has 50 papers, each of which has been cited at least 50 times. At the time of my October 2018 report, my h-index score was 119. It has now increased to 120. According to a recent analysis of the most highly cited researchers using data collected in



the first week of October, 2018, my h-index score (which was 118 at that time) placed me among the top 1600 most-cited scientists worldwide for all scientific disciplines, over all time.<sup>1</sup> In the 10th edition of that analysis, released in April of 2019 when I had an h-index score of 119 and a total number of citations of 66,139, I am now ranked among the top 1300 most-cited scientists worldwide for all scientific disciplines, over all time.<sup>2</sup>

19. An i10-index is a third way of assessing citations through Google Scholar. An “i10” number is the number of publications with at least 10 citations. At the time of my October 2018 report, my i10-index score was 837. It has now increased to 860.
20. Among my peer-reviewed, published research are at least two articles that are considered by the major indexing services to be “Citation Classic” publications, which means they have been cited more than 1000 times in other publications. One of those Citation Classic publications was a research review published in 1985 entitled “Midazolam: pharmacology and uses,” which was published in

---

<sup>1</sup> See 3160 Highly Cited Researchers (h>100) according to their Google Scholar Citations public profiles (9th ed.).

<sup>2</sup> See Highly Cited Researchers (h>100) according to their Google Scholar Citations public profiles (10th ed.), <http://www.webometrics.info/en/hlargerthan100>.

“Anesthesiology,” the major journal in the field of anesthesiology. In that article, my co-authors and I reviewed all the research done on midazolam up to that time, to synthesize that research into an understanding of the pharmacology and uses of midazolam. That article has been cited in other publications at least 1,082 times, and it continues to be cited regularly today. The other Citation Classic of which I am a co-author is entitled “A method for estimating the probability of adverse drug reactions,” published in 1981 in “Clinical Pharmacology & Therapeutics.” That article has now been cited at least 8,283 times, and it continues to be cited regularly today.

21. A great deal of my work in basic and clinical pharmacology has focused on the benzodiazepine class of drugs. As part of that research, I have worked extensively with midazolam. I first became involved with studying midazolam in the early 1980's, when my colleagues and I developed a method for measuring the drug in human and other animal plasma. We did a number of additional clinical studies of the drug, involving studies with human volunteers and patients, before the drug was even released for general clinical use. We conducted clinical studies of factors influencing how the drug is metabolized and cleared and distributed by the body. We looked at factors such as the effect of age on the drug's effects and metabolism, as well as gender, obesity, disease states, drug interactions with other drugs such as antibiotics and drugs being

developed to treat HIV, as well as interactions caused by various foods and beverages.

22. In fact, a number of our studies of midazolam went into the original New Drug Application that submitted for FDA approval of midazolam. Since that time, I have continued to do extensive research on midazolam, including experimental research using models such as enzyme models and molecular models, as well as animal studies. I also continue to conduct clinical studies of the drug as well. For example, my colleagues and I have done a number of studies looking at the effects of midazolam on the electroencephalogram (EEG), which measure electrical brainwaves, and how those effects relate to their concentrations in plasma and to the dose administered.
23. A number of my research studies are pharmacokinetic/ pharmacodynamics studies, because we looked at the connection between midazolam's effect on the body, which is pharmacodynamics, and the body's effect on the drug, how the body clears and removes the drug, which is called pharmacokinetics.
24. Clinical pharmacology is considered to be a branch of internal medicine. The principal focus of clinical pharmacology is on drug effects in humans, what their mechanisms of actions are (including pharmacodynamics), what their proper therapeutic uses are, what

adverse reactions might occur, the patterns of use of a drug, and what kind of factors influence the effects of the drug.

25. Clinical pharmacology also subsumes many areas of basic pharmacology, particularly those that are directly relevant to understanding drug metabolism, pharmacokinetics, and clinical effects. That would include pharmacogenetics, which is how genetic factors influence drug effects, the molecular mechanisms of drug metabolism, and how the enzymes in the liver and elsewhere in the body transform drugs to be eliminated. Clinical pharmacology also involves other fields of study, including toxicology. Toxicology is the study of drugs given in excessive amounts and overdosage, and it incorporates the interpretation of plasma concentrations of drugs. I have experience in these fields through my work with basic and clinical pharmacology. That has given me an extensive understanding of the effects on the human body of excessive amounts and overdoses of drugs administered in different ways. Likewise, although I am not an anesthesiologist by training, I am a professor of anesthesiology and have an understanding of why certain drugs are used for procedures in the anesthesia context (and the limitations of those drugs), based on my work with basic and clinical pharmacology, including my extensive knowledge and understanding of the actions of those drugs. That experience also provides me an extensive understanding of the effects on the human body of barbiturates like secobarbital,

benzodiazepines like diazepam and midazolam, opiate analgesics like morphine sulfate, cardiac glycosides like digoxin, beta-adrenergic antagonists like propranolol, and antidepressants like amitriptyline.

26. I have provided trial or deposition testimony as an expert witness in in-court expert witness testimony in 18 cases in the last four years, which are listed in my attached CV.
27. I am being compensated at the rate of \$300 per hour for research, evidence collection, document review, consultation, report-writing and travel related to this case. The maximum reimbursement per day out of the office is \$3000.

**SCIENTIFIC BASES AND OPINIONS REGARDING MIDAZOLAM AND OHIO'S  
THREE-DRUG LETHAL INJECTION PROTOCOL**

28. I stand behind, and fully adopt here, the opinions expressed on this topic in my previous expert reports and testimony given in this case. (See Greenblatt Expert Report, ECF No. 1956; Greenblatt Amended Expert Report, ECF No. 1976-3; Greenblatt Expert Rebuttal Report, ECF No. 2003; Greenblatt Testimony, ECF No. 2113, PageID 104162–263.)
29. I also agree with the testimony of Dr. Edgar that the Court heard previously regarding the development of acute pulmonary edema in inmates executed with a protocol that includes an IV injection of 500 mg or more of midazolam. I also agree with Dr. Edgar's testimony

about the cause of that acute pulmonary edema—namely, the large volume of acid injected into a vein. I discussed this subject in my previous reports, and I reiterate it here because I remain of the opinion that it is correct.

30. I also still agree with the testimony offered by other highly accomplished scientists in this case, such as Dr. Stevens, Dr. Lubarsky, Dr. Sinha, Dr. Bergese, and Dr. Exline, that midazolam does not protect a condemned inmate from the full scope of the severe pain and suffering associated with the second and third drugs in Ohio's current protocol. Their consistent testimony, grounded solidly in a correct understanding of the science, reconfirms that there is a scientific consensus regarding midazolam's pharmacology, pharmacokinetics, and its utter inability, at any dose, to become a pain-blocking drug.
31. I also agree with this Court's conclusion that midazolam at any dosage has no analgesic properties. (ECF No. 2133, PageID 105249.) Likewise, I agree with this Court's conclusion that because midazolam has no analgesic properties, it cannot prevent the pain incident to the second and third drugs from reaching the brain of the condemned inmate. (*Id.*) Further, I agree with this Court's conclusion that the second and third drugs in Ohio's protocol are so severely painful as to mandate that the State must do something first to prevent the inmate

from suffering that severe pain. (*Id.*) I also agree with the Court's conclusion that pulmonary edema that follows IV injection of high doses of midazolam in executions will certainly or very likely cause severe pain and needless suffering to the condemned inmate. (*Id.* at PageID 105250.) I also agree with the Court's assessment of the scientific method and how genuine science is conducted. (*Id.* at PageID 105252.)

32. I also highlight my agreement with the Court's conclusion that "it is certain or very likely that a 500 mg IV-injected dose of midazolam cannot reduce consciousness to the level at which a condemned inmate will not experience the severe pain" associated with the three drugs in Ohio's current protocol. (*Id.* at PageID 105253.) Because midazolam cannot suppress consciousness to the level required to be insensate to pain, and because midazolam cannot act on pain receptors like an opioid analgesic drug, there is, consequently, no way, as a matter of science, for midazolam to protect the inmate from being exposed to and experiencing the full measure of severe pain and suffering.
33. It is my understanding that the lethal injection protocol Ohio intends to use to execute Cleveland Jackson involves the same sequence of drugs it intends to use to execute Warren K. Henness: a sequence of three drugs injected intravenously, starting with 500 mg of

midazolam, then a paralytic drug called rocuronium bromide, and then potassium chloride.

34. I understand that additional executions using a three-drug midazolam lethal injection protocol have been conducted since my previous expert reports and testimony in this case. Based on the same scientific principles and testimony I provided before, principally the hard scientific fact that midazolam can never be a pain-blocking drug, at any dose, it is my expert opinion, to a reasonable degree of medical certainty, that Dominique Ray, Michael Samra, Christopher Price, and Donnie Johnson each surely or very likely remained sensate and experienced the full measure of severe pain and horrific suffering during their respective executions using three-drug midazolam lethal injection protocols. Each of them surely or very likely suffered the severe pain from developing non-cardiogenic acute pulmonary edema quickly after IV injection of 500 mg of midazolam, along with the burning pain from injection of that drug, as well as the severe pain and suffering associated with suffocation from the paralytic drug and the searing pain of injection of potassium chloride.

**I. Midazolam's Characteristics**

35. I stand behind, and fully adopt here, the opinions expressed on this topic in my previous expert reports and testimony given in this case. (See Greenblatt Expert Report, ECF No. 1956; Greenblatt Amended



Expert Report, ECF No. 1976-3; Greenblatt Expert Rebuttal Report, ECF No. 2003; Greenblatt Testimony, ECF No. 2113, PageID 104162–263.)

36. The pharmacology and pharmacokinetics of benzodiazepines remains the same from my previous reports. Thus, I adopt those previous opinions and explanations provided in those previous reports. I also reiterate the following opinions expressed in my previous report, to reemphasize them here.
37. Midazolam has no analgesic (pain-blocking) capabilities. By itself, midazolam cannot render a person insensate to pain, for two fundamental reasons.
38. First, midazolam cannot render someone insensate to pain because it is not an analgesic drug, at any dose. It does not have the chemical properties such that it can act on pain receptors. It acts on the benzodiazepine receptors, not pain receptors like opioids do. Thus, in circumstances such as a colonoscopy there is almost always some other drug administered along with the midazolam, such as an opioid analgesic. The analgesic drug protects against the person feeling pain, while the midazolam prevents traumatic memories from being formed and relaxes the person, making them drowsy enough to accept the procedure.

39. Second, midazolam cannot render someone insensate to pain because it does not have the ability to so deeply sedate someone to the level of unconsciousness at which there is an associated occurrence of insensation such that a person will fail to be aroused by noxious stimuli such as those caused by the drugs in Ohio's execution protocol. The nature of the drug's effect on the brain dictates this; no matter what dose is given, midazolam can only produce a degree of sedation that is insufficient to render a person insensate. This is because benzodiazepines act only on the *frequency* of the opening of the receptor chloride channel, as explained in my previous reports in this case, and as explained previously in this case at length by Dr. Stevens. That science remains unchanged. Unlike a barbiturate or a general anesthetic drug, which act on the *duration* of the chloride channel opening itself, midazolam only affects how frequently the channel opens. Thus, the drug will always permit less chloride into the channel than the drugs that keep the channel open for extended periods of time. Those limitations mean that, as a matter of scientific certainty, midazolam simply cannot make a person insensate by way of suppressing consciousness to a deep enough level. Only at a stage of sedation beyond what midazolam can legitimately achieve is there sufficient consciousness suppression to assure insensation. Midazolam simply cannot produce that level of unconsciousness.

40. It still remains the case that the inmate subjected to Ohio's execution protocol must be made insensate first. Otherwise, he will be sure or very likely to experience the severe pain and suffering caused by the three drugs in the three-drug midazolam protocol. He will remain sensate if Ohio does not use an analgesic drug in its protocol; Ohio does not. He will also remain sensate if Ohio does not suppress his consciousness so deeply to the level at which unconsciousness and insensation occur together. But midazolam cannot achieve that level of unconsciousness, so he will not be insensate in that way either.
41. In my expert opinion, based on my background as a clinical pharmacologist researching the basic and clinical pharmacologic properties of midazolam, and as a physician trained in internal medicine, 500 milligrams of midazolam would not make the inmate insensate to protect him from the severe pain and suffering caused by Ohio's execution protocol, including: from the drowning and suffocating sensations of rapidly developing acute pulmonary edema; from the burning sensations of injection of that amount of acidic midazolam; from the burning sensations of injection of the acidic paralytic drug; from the suffocating effects of the paralytic drug; or from the severe burning upon rapid injection of a large dose of potassium chloride. In other words, it is sure or very likely that the inmate subjected to Ohio's three-drug midazolam lethal injection protocol will be subjected to one or more of those different types of

severe pain and suffering associated with the drugs as used in Ohio's protocol.

42. I base that expert opinion on my own extensive background experience researching midazolam, as well as the general scientific consensus about the underlying mechanism of action of midazolam and other benzodiazepines, as reflected in the literature. It has no analgesic properties and cannot produce a sufficient level of sedation at which unconsciousness and insensation occur together to protect against noxious stimuli like the injection of the drugs in Ohio's protocol or the effects of those drugs. The midazolam simply does not do that.
43. That expert conclusion and general scientific consensus does not change even though Ohio plans to inject 500 mg or more of midazolam. I know of no research studies on the effect of a 500 mg or larger dose of midazolam. Such studies are unnecessary for us to know with sufficient certainty what such large doses of midazolam will do (and not do). First, because I can say with a high degree of scientific certainty that all relevant benzodiazepine receptors will be occupied at a dose of approximately 250 mg. Existing studies demonstrate there is a point in the range of 15-40 mg at which there is no further sedative effect created by additional doses of midazolam. And second, because there is data on what very large doses of other

benzodiazepines will do. Because the properties of individual drugs within this class are very similar, we can draw scientifically valid conclusions about the effects of 500 mg or more of midazolam from studies on overdosage of other benzodiazepines.

44. For example, I have been personally involved in conducting studies involving patients who were hospitalized because of benzodiazepine overdosage. (See, *e.g.*, Greenblatt, DJ, et al., Acute overdosage with benzodiazepine derivatives, *Clinical Pharmacology and Therapeutics*, Vol. 21, No. 4, pp. 497-514, Apr. 1977; Divoll, M., et al., Benzodiazepine Overdosage: Plasma Concentrations and Clinical Outcome, *Psychopharmacology* (1981) 73:381-383; Divoll, et al., Pharmacokinetic Study of Lorazepam Overdosage, *Am J Psychiatry* 137:11, November, 1980; Greenblatt, D.J., et al., Rapid Recovery From Massive Diazepam Overdose, *Journal of American Medical Association*, Oct. 20, 1978, Vol. 240, No. 17.) We studied their clinical course and obtained blood or plasma concentrations as the persons came into the medical facility, and then for a period of time after that. We followed how they progressed and recovered and what their initial blood levels were, and how they declined with time. In one study, there were doses as large as 2 grams of diazepam, compared to the usual therapeutic dose of 10 mg. That equates to approximately 2000 mg of midazolam. Another person took a dose of

between 450 and 500 mg of diazepam, which is many times the therapeutic dose of that drug.

45. The findings from those studies are all consistent. The studies each included the Lawson Mitchell sedation scale, which grades sedation and Central Nervous System (CNS) depression on a scale of 1 to 4. Levels 1 and 2 involved patients that remained more alert, with only slight levels of sedation, while the more serious levels of sedation were Levels 3 and 4. But in these studies, overdoses of benzodiazepines alone seldom if ever got to a sedation level of 3 or 4. Those that reached a Level 3 or 4 had taken other drugs in addition to the diazepam. With extremely large doses of benzodiazepines alone, the patients were sleepy and sedated, but they remained sensate, and they did not have problems with their breathing or respirations. After a day or so, they typically woke up and went home. When the patients mixed benzodiazepines with other drugs, the situation became more problematic, but those other drugs did not involve a paralytic or potassium chloride.
46. Other studies also support the conclusions that other experts in this case have drawn, including that one of midazolam's characteristics is that it has a maximum sedative effect that will prevent it from sedating the inmate to the point at which he will be deeply enough unconscious as to possibly be insensate.

47. For example, studies conducted by Bühner and Stanski (attached to this Report) used the EEG as an objective window on the brain to measure the depth of sedation. Dr. Stanski was a colleague of mine at Mass General before he went to Stanford, and I mentored him in his research training. My group collaborated with Bühner and Stanski on those studies, because they sent some of their blood samples to our lab to be analyzed.
48. Bühner and Stanski reached two principal findings in their studies. First, they demonstrated that when there is an increase in dose of midazolam beyond a certain level, there will not be an associated or parallel increase in the depth of sedation. When they went from 7.5 mg to 15 mg, there was a measurable increase in sedation on the EEG. But when they increased from 15 mg to 25 mg, there was no further increase in sedation. That is strong scientific proof that the maximum sedative effect of midazolam occurs somewhere in that 25-40 mg dosage range. The second principal finding from those studies was that midazolam has a delay in onset of maximum sedative effect, also called the peak effect. The time of maximum or peak sedative effect is the time at which the maximum effect will occur. Those studies showed that there was an average delay in onset of up to 20 minutes, or possibly more, to reach whatever midazolam's maximum effect level is.

49. Other studies that my colleagues and I conducted were of a generally similar nature to the Bühner and Stanski studies, using EEG measurements. (See, e.g., Greenblatt, D.J., et al., Kinetics and EEG Effects of Midazolam during and after 1-Minute, 1-Hour, and 3-Hour Intravenous Infusions, *Journal of Clinical Pharmacology*, 2004;44-605-611; Greenblatt, D.J., et al., Pharmacokinetic and electroencephalographic study of intravenous diazepam, midazolam, and placebo, *Clin. Pharmacol. Ther.* 1989;45:356-65.) Those studies showed the same kind of result—a concentration at which there is no greater sedative effect achieved, as well as a delay in onset of maximum sedative effect.
50. The Bühner and Stanski studies also showed that as the size of the dose of midazolam increased, the time to peak sedative effect also increased. The higher the dose, the greater the delay. The reason for that can be found in the formulation of the drug and its intravenous preparation, which is formulated in acid to keep it in solution. Recall that midazolam is a benzodiazepine with an accessory ring called an imidazole ring. When the drug is in acid, the ring is open. And the drug actually undergoes a conformational change of its structure when the ring is open. The ring-open form is pharmacologically inactive. The drug solution must be buffered by the blood back to the normal pH 7.4 for that ring to close and for the drug to become active and be able to reach and affect the brain. Injecting smaller doses as



customarily used in clinical practice, contained in 1 or 2 ml of injection solution, allows the solution to be buffered more rapidly, thereby leading to a shorter time to peak effect. But injecting larger doses causes a delay in reaching peak effect, because the blood must buffer a larger amount of acid. It would take several circulations for that amount of acid to be buffered to pH 7.4. Each circulation would take approximately 60 seconds. I must also distinguish between “onset” (the first attainment of *any* sedative effect) versus time of maximum effect. The initial onset of *any* observable sedative effects may be a minute or more, but that is not the peak effect.

51. I should also note that the results of my study *Kinetics and EEG Effects of Midazolam*, as shown in Figure 4 of that article, might appear to support a linear relationship between the dose of midazolam and the effect on EEG. That, in turn, might be misconstrued to support the notion that if a dose of midazolam is increased beyond standard therapeutic doses, deeper levels of sedation could be achieved accordingly. That would be a misinterpretation of the study, however. We did not study different doses, we only studied one dose, which was .1 mg per kg of body weight. Additionally, the data makes clear that even with increases in plasma concentration, the EEG effect did not increase.

52. In my 1989 study, a 9 mg dose did not reach peak sedative effect for 15 minutes. The 500 mg dose of midazolam that Ohio intends to inject is approximately 50 times larger than the 9 mg dose for which peak sedative effect took 15 minutes.
53. Having reviewed the execution timeline logs produced by the State of Ohio during its executions of Ronald Phillips, Gary Otte, and Robert Van Hook, it appears that the State is injecting the 100 ml (500 mg) of midazolam rather quickly; 1:49 from the start of the first injection to the completion of the midazolam injections for Phillips, 2:24 for Otte, and 2:29 for Van Hook. It also appears that the State is finishing (let alone starting) its potassium chloride injections rather quickly after it finishes the injection of midazolam; 7:14 for Phillips, 8:26 for Otte, and 8:19 for Van Hook.
54. It is my expert opinion, to a reasonable degree of scientific certainty, that it is sure or very likely that such a large volume of midazolam will cause a delay in the onset of peak sedative effect such that peak sedative effect will not be achieved by the time the potassium chloride is completely injected, let alone when those injections start.
55. By extension, it is also my expert opinion, to a reasonable degree of scientific certainty, that it is sure or very likely that such a large dose of midazolam will delay onset of the peak sedative effect past the point

- at which the paralytic is injected, and well past the point at which the inmate will be sure or very likely to develop acute pulmonary edema.
56. Consequently, it is my expert opinion, to a reasonable degree of scientific certainty, that an inmate executed using Ohio's three-drug midazolam protocol is sure or very likely to feel severe pain and suffering following injection of the protocol's drugs.
57. Because midazolam at any dose and over any period of time cannot render an inmate insensate to protect him from the severe pain and suffering that will follow with Ohio's protocol, the dose at which the ceiling effect occurs and the time for a large dose such as 500 mg to reach peak sedative effect are functionally irrelevant in the execution context.

## **II. Large doses of IV-injected midazolam and Pulmonary Edema**

58. Once again, I stand behind and fully adopt the opinions and explanations expressed on this topic provided in my previous reports. (See Greenblatt Expert Report, ECF No. 1956; Greenblatt Amended Expert Report, ECF No. 1976-3; Greenblatt Expert Rebuttal Report, ECF No. 2003; Greenblatt Testimony, ECF No. 2113, PageID 104162–263.)
59. I also reiterate my previous opinion that the effects of pulmonary edema on the condemned inmate will be severely painful and

horrifying. The oxygen deprivation associated with acute pulmonary edema produced by peripheral IV injection of 500 mg of midazolam would not in any way reduce the level of suffering that the inmate will be sure or very likely to fully experience from the effects of the pulmonary edema itself, or the effects of the second and third drugs.

**III. Additional Matters Regarding Ohio's Three-drug Midazolam Lethal Injection Protocol.**

60. I note the arguments that the State of Ohio has made in its brief filed in the Sixth Circuit case *Hennes v. DeWine*, No. 19-3064, arguing that there is no evidence that using Ohio's three-drug midazolam protocol will cause an inmate to experience severe pain and suffering. In my opinion, those arguments fundamentally misstate the science by suggesting that there is a level of unconsciousness short of general anesthesia at which the pain caused by Ohio's current lethal injection protocol is somehow lessened or mitigated.

61. The State of Ohio argues in its *Hennes* brief that the "question is whether the inmate's subjective, conscious experience is comparable to that of a fully conscious, non-medicated person being exposed to constitutionally impermissible pain. It makes no difference whether the inmate 'senses' pain if midazolam alters his mental state to bring the 'level of pain' below the constitutional limit." (Brief of State Appellees, *Hennes v. DeWine*, p. 56.) The State likewise argues the "question is not *whether* the inmates experience the pain, but rather

what the subjective experience would be like.” (*Id.* at p. 57.) The State also argues that “since midazolam is at least *capable* of altering subjective experience, the question becomes whether an inmate injected with 500 milligrams of an experience-altering drug would subjectively experience the sort of pain, ‘terror, fear, and disgrace’ relevant for Eighth Amendment purposes.” (*Id.* at p. 58.) The State made the same argument throughout the remainder of its brief, including the following assertion: the evidence about midazolam’s inabilities “is not legally relevant absence evidence of the inmate’s subjective experience. . . . none of that ultimately makes any difference: ‘the fact that an inmate was not insensate to pain does not prove he was experience pain or what level of pain he was experiencing.’” *Id.* at 65–66.) The State makes the same argument as to the risk of pain from the second and third drugs, stating that it “does not matter whether midazolam stops ‘the pain incident to the second and third drugs from reaching the brain of the condemned inmate, . . . if the subjective experience of that pain is not ‘serious’ in Eighth Amendment terms.” (*Id.* at 66–67.)

62. But, to be blunt, that basic argument is not real, actual science. That is simply not the way that sedation, consciousness, and sensation work. The fact that an inmate was not insensate to pain *does* prove, by definition, that he was experiencing that pain. It also proves that he was experiencing the full scope of the pain involved. In the context

- of Ohio's execution protocol, that pain is severe. Because midazolam does not stop the pain incident from the second and third drugs (or from the pulmonary edema) from reaching the brain of the condemned inmate, the experience of that inmate will be the same as any other person—that of severe pain and horrific suffering.
63. Put simply, in the absence of either an opioid analgesic drug or unconsciousness to the depth at which unconsciousness and insensateness occur together—*i.e.*, unconsciousness at the depth of general anesthesia—the inmate's subjective experience of pain is the same as a "fully conscious, non-medicated person being exposed to constitutionally impermissible pain," because in that situation there is nothing to blunt the pain.
64. Consciousness is a spectrum. But sensation is the crucial consideration when the question is whether Ohio's current execution protocol will subject the inmate to severe pain and suffering, and sensation is binary; one is either sensate or one is not. If the inmate is not insensate—if he remains sensate—he will experience the full scope of the severe pain and horrific suffering caused by the drugs in Ohio's protocol. The inmate can only be made insensate in one of two ways, as I explained at length in my previous expert report and testimony, which I adopt in full here. To summarize, the State could administer an opioid analgesic drug, or it could suppress the inmate's

consciousness so deeply that unconsciousness and insensateness occur, which is the state of general anesthesia.

65. But Ohio's protocol does not create insensateness in either of those two ways. Midazolam, regardless of the dose, is neither an analgesic drug nor capable of suppressing and keeping the consciousness to the depth associated with general anesthesia. The inmate will thus remain sensate, regardless of whether he is sedated at even the maximum level that midazolam can create. That means he will experience the full scope of severe pain and suffering, regardless of whether his consciousness level is altered to be something other than fully conscious.
66. Sedation at a higher level than the depth at which insensateness occurs does not alter the "subjective" experience of pain, regardless of whether one's consciousness is "altered." Altering the consciousness at the depth to which midazolam can produce might restrict the inmate's ability to convey what he is experiencing, such as his ability to respond to the "consciousness checks." But that is an entirely different matter than whether the inmate is actually subjectively feeling the full scope of severe pain and suffering. He will, he just may not be able to express that, due to the sedation or, later, the paralytic drug's effects.

67. Midazolam at any dose is not and cannot act as an opioid analgesic. Thus, the *only* way it might reduce the level of pain the condemned inmate will be sure or very likely to suffer from Ohio's current three-drug protocol is midazolam can render and keep the inmate unconscious to the depth at which unconsciousness and insensateness occur together. It cannot do that either, regardless of the dose. Consequently, that inmate will experience the full measure of severe pain caused by Ohio's three-drug midazolam protocol. Will midazolam make a person "unconscious"? Yes, it will, but only to a certain level, and that level is not deep enough to effect insensateness. The inmate's subjective experience of that severe pain, even if he is sedated at some level of unconsciousness, will be sure or very likely to be the same as if he were fully conscious because, again, sensation is binary, and midazolam has no analgesic properties.
68. Also, I note that whether midazolam is used alone for intubation is irrelevant to the question of whether Ohio's midazolam execution protocol causes the inmate to suffer severe pain. Midazolam is an anterograde amnestic drug, meaning it blocks the formation of memories. Thus, the fact that midazolam can be used to sedate and relax a patient enough to insert a breathing tube in limited situations, and that patient will not remember the pain later, says nothing about whether the drug can actually block pain in the moment. It cannot.



69. The State also has taken the position that my previous testimony was “predicated on the assumption that the inmate sedated with 500 milligrams of midazolam would subjectively experience the pain in precisely the same way as a fully conscious person.” (Brief of State Appellees, *Hennes v. DeWine*, p. 67.) But the State is incorrect; that is not an “assumption.” Rather, it is a conclusion born of the science involved. Misinterpreting or misrepresenting the science as the State does will not make that conclusion any less scientifically valid or accurate. And repeating on numerous occasions that misinterpretation or misrepresentation of the science as the State does will not make that inaccuracy any more correct. It remains incorrect as a matter of science, no matter how many times the State repeats it.

**IV. Ohio’s Executions of Ronald Phillips, Gary Otte, and Robert Van Hook**

70. Once again, I stand behind and fully adopt the opinions and explanations expressed on this topic provided in my previous reports. (See Greenblatt Expert Report, ECF No. 1956; Greenblatt Amended Expert Report, ECF No. 1976-3; Greenblatt Expert Rebuttal Report, ECF No. 2003; Greenblatt Testimony, ECF No. 2113, PageID 104162–263.)

**V. Other Executions Using Midazolam**

71. Once again, I stand behind and fully adopt the opinions and explanations expressed on this topic provided in my previous reports. (See Greenblatt Expert Report, ECF No. 1956; Greenblatt Amended Expert Report, ECF No. 1976-3; Greenblatt Expert Rebuttal Report, ECF No. 2003; Greenblatt Testimony, ECF No. 2113, PageID 104162–263.)
72. There have been four additional executions using a three-drug midazolam protocol since my previous testimony in this case. And the two written autopsy reports I have seen confirm that the inmate developed pulmonary edema in both of those executions—that of Donnie Johnson in Tennessee, and Dominique Ray in Alabama. It is my understanding that there was also an autopsy performed on the other two executed inmates—Michael Samra and Christopher Price, both in Alabama—and I reserve the ability to update this report as applicable when the written autopsy reports for those executions become available.

**SCIENTIFIC BASES AND OPINIONS REGARDING SCIENTIFIC DATA COLLECTION AND USAGE, AND OTHER MATTERS OF SCIENTIFIC CONSENSUS**

73. Once again, I stand behind and fully adopt the opinions and explanations expressed on this topic provided in my previous reports. (See Greenblatt Expert Report, ECF No. 1956; Greenblatt Amended

Expert Report, ECF No. 1976-3; Greenblatt Expert Rebuttal Report, ECF No. 2003; Greenblatt Testimony, ECF No. 2113, PageID 104162–263.)

**SCIENTIFIC BASES AND OPINIONS RELATED TO MR. JACKSON'S  
ALLEGED ALTERNATIVE LETHAL INJECTION PROTOCOLS**

74. I am aware of the Court's previously stated concern that alternative lethal injection protocols like those Mr. Jackson alleges here might not reduce the risks of severe pain posed by Ohio's three-drug midazolam protocol. I disagree, however, that there is reasonable scientific basis to be concerned.
75. I am also aware of the Court's stated concern that alternative lethal injection protocols that include an overdose of a barbiturate, an opiate, or a benzodiazepine might cause the inmate to develop and suffer the severely painful, torturous sensations of pulmonary edema in the same way an inmate executed with Ohio's three-drug midazolam protocol would. Again, I disagree, because there is ample scientific evidence to allay the Court's concerns.
76. It is my expert opinion, to a reasonable degree of medical certainty, that any of the lethal injection alternative protocols that Mr. Jackson has alleged would significantly reduce the several risks of severe pain that Ohio's current three-drug midazolam protocol presents.

77. None of Jackson's alternatives include a paralytic drug or potassium chloride. Thus, it is axiomatic that none of Jackson's lethal injection alternatives would pose any of the risks of severe pain and suffering that those drugs in Ohio's current protocol pose, thereby eliminating and thus substantially reducing those risks.
78. There are at least three crucial differences between Ohio's current three-drug midazolam protocol and Mr. Jackson's alleged alternatives that virtually eliminate any risk of the condemned inmate remaining sensate to, and thus suffering, the severe pain from pulmonary edema inflicted by the current protocol.
79. First, the inmate would be entirely insensate, unaware, and unconscious after administration of any of the alternative protocols. Unlike Ohio's reliance on midazolam in the current Ohio execution protocol, each of the lethal injection alternatives includes a drug that that will make the inmate insensate.
80. Keep in mind the distinction between being "unconscious" and "insensate" that I explained in my previous report in this case (*see* ECF No. 1976-3, PageID 88239-242, ¶¶ 108-110), and above in the previous section. Just because an inmate is "unconscious" does not mean he is insensate. To reiterate, consciousness is assessed on a spectrum, but sensation is binary. That means as long as the inmate remains sensate, he can still feel and experience pain, even if he is

sedated as to appear “unconscious.” That also means that unless the inmate is insensate, he will be exposed to the severe pain and suffering caused by Ohio’s current execution protocol, including the pain from developing non-cardiogenic pulmonary edema and the pain associated with the second and third drugs.

81. Thus, the central question is whether there is anything in a lethal injection protocol that will make the inmate insensate rapidly enough that he is insensate before sources of severe pain become applicable. In Ohio’s current protocol, there is absolutely nothing that will do that.

82. As I explained previously, there are only two ways in the execution context to ensure that an inmate is insensate: 1) administer an opioid analgesic pain-blocking drug; or 2) administer a drug like a barbiturate or a general anesthetic that results in deep enough sedation such that the inmate is both unconscious and insensate. That level of sedation is *only* achievable at the level of unconsciousness known as general anesthesia. In the absence of an opioid analgesic pain-blocking drug, it does not matter where an inmate lies on the consciousness spectrum if he is not past the point of unconsciousness associated with general anesthesia: he will remain sensate to the severe pain and suffering caused by acute pulmonary edema, the paralytic, and the potassium chloride.

83. As I have explained, there is no reasonably debatable question, based on the pharmacology and pharmacokinetics of midazolam, that midazolam, at any dose, does not function as an analgesic drug, and it cannot depress the consciousness to the depth at which insensateness occurs.
84. But the two lethal injection alternatives that Jackson alleges do include a way by which the inmate would be made insensate before the severe pain of pulmonary edema might develop, if at all.
85. The secobarbital alternative includes a large overdose of secobarbital, which is a barbiturate. Dobos JK, Phillips J, Covo GA. Acute barbiturate intoxication. JAMA. 1961;176:268-272; Hadden J, Johnson K, Smith S, Price L, Giardina E. Acute barbiturate intoxication. Concepts of management. JAMA. 1969;209(6):893-900; Greenblatt DJ, Allen MD, Harmatz JS, Noel BJ, Shader RI. Overdosage with pentobarbital and secobarbital: assessment of factors related to outcome. J Clin Pharmacol. 1979;19(11-12):758-768. That will cause the inmate to become so deeply unconscious as to be unconscious at the level at which insensation occurs. That would protect the inmate against the severe pain and suffering from any pulmonary edema that might subsequently develop at a later time.

86. The four-drug morphine alternative includes a large overdose of morphine, which is an opioid analgesic. Glare PA, Walsh TD. Clinical pharmacokinetics of morphine. *Ther Drug Monit.* 1991;13(1):1-23. The morphine is a true pain-blocking drug, acting on the body's pain receptors, and it will therefore protect the inmate against the severe pain and suffering from any pulmonary edema that might subsequently develop at a later time.
87. Second, the inmate would be made insensate, unaware, and unconscious relatively quickly after oral administration of the alternative protocols. By contrast, Ohio's current three-drug protocol will never cause insensateness, at any time following injection.
88. The onset of action of oral secobarbital is rapid. After administration of usual therapeutic doses, effects are maximal within one hour, although the onset of those effects occurs much quicker. After a very large dose, like 10 grams, extreme central nervous depression is very likely to be produced rapidly as well. Epstein LC, Lasagna L., A comparison of the effects of orally administered barbiturate salts and barbiturate acids on human psychomotor performance. *J Pharmacol Exp Ther.* 1968;164(2): 433-441; Bloomfield SS, Tetreault L, Larenriere B, Bordeleau JM., A method for the evaluation of hypnotic agents in man. The comparative hypnotic effects of secobarbital, methaqualone and placebo in normal subjects and in psychiatric patients, J

- Pharmacol Exp Ther. 1967;156(2): 375-382; Urbach KF., Hypnotic properties of amitriptyline: comparison with secobarbital, Anesth Analg. 1967;46(6):835-842.
89. The same rapid onset of effect and of maximum effect is true following oral administration of morphine in therapeutic doses and in overdoses such as 15 grams of morphine. Glare PA, Walsh TD, Clinical pharmacokinetics of morphine, Ther Drug Monit. 1991;13(1):1-23.
90. Third, the inmate would not develop the same type of pulmonary edema, at the same speed, or for the same reasons, as inmates are developing pulmonary edema during executions that involve IV-injected massive doses of midazolam.
91. Acute pulmonary edema following high-dose intravenous midazolam is a direct irritant effect of the intravenous solvent (the acidic midazolam) on lung tissue, causing a failure of barrier function of capillary endothelial cells. That results in leakage of intravascular fluid into the alvoli, where oxygen-CO<sub>2</sub> exchange is supposed to happen. That is a non-cardiogenic genesis of pulmonary edema, because it has nothing to do with cardiac functions. See Mattu A, Martinez JP, Kelly BS, Modern management of cardiogenic pulmonary edema, Emerg Med Clin North Am. 2005;23(4):1105-1125; Perina DG., Noncardiogenic pulmonary edema, Emerg Med Clin North Am. 2003;21(2):385-393.



92. The inmate who develops this non-cardiogenic pulmonary edema from Ohio's current protocol will remain sensate to that severe pain and suffering. Again, an inmate executed with midazolam as the first drug in Ohio's current protocol will *never* be made insensate, because none of the drugs in the protocol is a pain-blocking drug and none of the drugs can suppress the consciousness to the level at which insensateness occurs. Thus, an inmate who develops non-cardiogenic pulmonary edema following IV injection of a high dose of midazolam will remain sensate to the severe pain and suffering of acute pulmonary edema throughout the remainder of his execution.
93. In contrast, pulmonary edema associated with oral barbiturate or opioid overdose obviously can't involve that mechanism, since there is no intravenous solvent involved. The drugs are administered into the gastro-intestinal tract, not infused into peripheral veins. It is true that overdoses of barbiturates or opioids or benzodiazepines might cause pulmonary edema to develop eventually. But any pulmonary edema that might develop from overdoses of those drugs administered orally is due to a failure of cardiac function and blood pressure regulation, and can be called cardiogenic. See Mattu A, Martinez JP, Kelly BS, Modern management of cardiogenic pulmonary edema, Emerg Med Clin North Am. 2005;23(4):1105-1125; Perina DG., Noncardiogenic pulmonary edema, Emerg Med Clin North Am. 2003;21(2):385-393. Pulmonary edema is an end-stage consequence

of lethal systemic and CNS exposure to the barbiturate or opioid, leading to inadequate cardiac output, pressure imbalance between left and right heart, and consequent pulmonary congestion and edema.

94. A key distinction between cardiogenic pulmonary edema in this situation and the non-cardiogenic pulmonary edema that develops with Ohio's current protocol is that the cardiogenic pulmonary edema would develop much more slowly, because it depends on impairment of heart function (force of contractions), and failure of blood vessels in the rest of the body's circulation to maintain enough resistance and support blood pressure. As a result, there is a back-up of fluid which leaks into lung tissue, which causes the (cardiogenic) pulmonary edema to develop.
95. The crucial takeaway from this is that an inmate who develops cardiogenic pulmonary edema after injection of any of Jackson's lethal injection alternatives would not remain sensate at that time, because the morphine or secobarbital would have rendered him insensate well before that pulmonary edema develops. Thus, unlike the demonstrated likelihood of the inmate suffering the severe pain of non-cardiogenic acute pulmonary edema with Ohio's current protocol, there is little to no risk that the inmate would suffer from severe pain of any cardiogenic acute pulmonary edema that might develop under Jackson's alternatives.

96. To summarize: an inmate executed using Ohio's current three-drug protocol will:

- A. Remain sensate throughout the duration of his execution because there is no pain-blocking drug in the protocol, and
- B. almost immediately begin to develop and suffer the horrifying sensations of acute non-cardiogenic pulmonary edema that is
- C. caused by the large amount of highly acidic drug injected directly into his blood stream through a peripheral IV, which travels, unbuffered to a neutral pH, from there to the lungs in seconds, irritating and disrupting the delicate lung tissues and capillaries.

97. On the other hand, an inmate executed using Mr. Jackson's alleged lethal injection alternative protocols will:

- A. Be quickly rendered insensate, unaware, and unconscious shortly after ingesting the drug(s), because there is a true pain-blocking drug administered, and
- B. not experience the severe pain and suffering of any pulmonary edema that develops, because he is insensate and any pulmonary edema that develops will develop quite gradually, if at all, well after the inmate is insensate, in the form of cardiogenic pulmonary edema,
- C. caused by the respiratory suppressant effects of the drugs, not a direct action on the lung tissues and capillaries themselves.

98. Additionally, the time from ingestion of the alternative drugs until the drugs start to take effect and reach maximum effect—and thus the time from ingestion until death—can be decreased by injecting the drugs directly into the duodenum rather than into the stomach. This can be accomplished through the use of a feeding tube with a weighted tip. Injecting the drugs directly into the duodenum places the drugs into the part of gastrointestinal track where the drugs are absorbed into the bloodstream. The net result is that the onset of all drug effects would be accelerated. However, unconsciousness and the insensate condition would still occur before cardiac output failure and any cardiogenic pulmonary edema. The sequence of effects on the inmate would be the same, but of faster onset.

### **CONCLUSION**

99. My expert opinions are contained throughout this report, as well as my previous reports and testimony, which are fully incorporated here by reference. (See Greenblatt Expert Report, ECF No. 1956; Greenblatt Amended Expert Report, ECF No. 1976-3; Greenblatt Expert Rebuttal Report, ECF No. 2003; Greenblatt Testimony, ECF No. 2113, PageID 104162–263.)
100. Some of them are reiterated as follows.
101. It is my expert opinion that once the maximum sedative effect of 500 mg of IV injected midazolam is reached, an inmate will nevertheless

remain sensate and is sure or very likely to experience the severe pain and suffering associated with the drugs in the protocol.

102. It is my expert opinion that there is no analgesic property to midazolam, and midazolam at any dosage is unable to put the inmate in a state of being so deeply sedated as to be unconscious and insensate at once. Or, stated differently, it is my expert opinion that IV-injected midazolam, at any dose, will never be able to make an inmate insensate as is necessary to avoid subjecting that inmate to the severe pain and suffering associated with the drugs in Ohio's execution protocol, and larger doses actually increase the risk of pain and suffering to which the inmate will be subjected.
103. It is my expert opinion that a consensus exists among those with the most relevant training and experience in clinical pharmacology that supports my conclusions about midazolam's limitations contained throughout this report.
104. It is my expert opinion that the primary cause of the pulmonary edema identified in most of the inmates executed using a lethal injection cocktail including large doses of IV-injected midazolam is its acidic solution. That acid enters the lungs following IV injection, and immediately begins irritating the pulmonary blood vessels and leakage of fluid into spaces where air exchange occurs. The result is that the

lungs immediately begin to fill with fluid, which will continue even after the midazolam is buffered to a neutral pH.

105. It is my expert opinion that acute pulmonary edema is a terrifying condition, and that it causes the inmate to endure great suffering as he will struggle to breathe with damaged lungs that cannot exchange air.
106. It is my expert opinion that injecting large doses of midazolam in IV injection solution will cause severe burning sensations in the blood vessels due to the acidic nature of the midazolam in that form.
107. It is my expert opinion that an inmate who is subjected to Ohio's Execution Protocol, including Plaintiff Henness, is certain or very likely to experience acute pulmonary edema after peripheral IV injection of 500 mg or more of midazolam.
108. It is also my expert opinion that an inmate who is subjected to Ohio's Execution Protocol, including Plaintiff Henness, is certain or very likely to remain sensate to the severe pain and suffering associated with acute pulmonary edema.
109. It is also my expert opinion that an inmate who is subjected to Ohio's Execution Protocol, including Plaintiff Henness, is certain or very likely to remain sensate to the severe pain and suffering associated with peripheral IV injection of 500 mg or more of midazolam.

110. It is also my expert opinion that an inmate who is subjected to Ohio's Execution Protocol, including Plaintiff Henness, is certain or very likely to remain sensate to the severe pain and suffering associated with injecting the second and third drugs.
111. It is also my expert opinion that an inmate who is subjected to Ohio's Execution Protocol, including Plaintiff Jackson, is certain or very likely to remain sensate to the severe pain and suffering associated with the actions of the second and third drugs.
112. It is my expert opinion that a consensus exists among scientifically trained persons that additional data that is confirmatory is of great importance for establishing scientific "truth," and, accordingly, such "cumulative" data is highly relevant to appropriately conducted medical and scientific research.
113. It is my expert opinion that the executions the courts have previously described as having been without problems were not, as a matter of scientific fact, without problems; almost all of the inmates in the Florida executions developed acute pulmonary edema, and inmate Warner described the pain from injection of a large volume of acidic midazolam in IV injection solution as causing him to feel as if his body was on fire.

114. It is my expert opinion that the lethal injection alternatives that Jackson has alleged would significantly reduce the substantial risks of the inmate experiencing the full scope of pain from several different sources of severe pain and suffering caused by Ohio's current protocol, including, among others, the pain and suffering from non-cardiogenic acute pulmonary edema, from the burning pain following peripheral IV injection of 500 mg midazolam, from the horrific suffocation caused by the paralytic drug, and from the burning pain upon IV injection of a large dose of potassium chloride.
115. It is my expert opinion that the lethal injection alternatives that Jackson has alleged would significantly reduce the substantial risks of the inmate experiencing any pulmonary edema caused by the alleged alternatives as compared to the risk of pain from the inmate developing pulmonary edema following administration of Ohio's current three-drug protocol.
116. It is my expert opinion that any pulmonary edema that might develop following oral administration of Jackson's alleged alternatives would be cardiogenic pulmonary edema, not the non-cardiogenic pulmonary edema that Ohio's current three-drug execution protocol causes. It is also my expert opinion that there is virtually no risk that Jackson would remain sensate to experience any pain or suffering from the cardiogenic pulmonary edema that might develop with his alleged



alternatives, unlike the sure or very likely risk that he will experience the full measure of severe pain and suffering from the non-cardiogenic pulmonary edema that Ohio's current protocol causes.

117. It remains my expert opinion that if an inmate is not rendered and kept insensate during his execution, then that inmate will be sure or likely to experience and be subjected to the full measure of severe pain and suffering caused by the drugs in Ohio's lethal injection protocol. Because he will remain fully sensate, there is no difference in terms of pain sensation and subjective experience between an inmate given 500 mg of IV injected midazolam and one who is otherwise fully conscious and not made insensate. Whether the inmate's consciousness is "altered" by the midazolam is utterly irrelevant to whether he will remain sensate to the full measure of severe pain and suffering that Ohio's current protocol causes.
118. I hold the opinions expressed throughout this expert report to a high degree of medical and scientific certainty. I understand that discovery remains ongoing, and I reserve the right to amend or supplement my report upon provision of additional information that so warrants, including but not limited to deposition testimony and additional documents.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: July 9, 2019

Boston, Massachusetts

A handwritten signature in black ink, appearing to read "David J. Greenblatt". The signature is written in a cursive, somewhat stylized font.

**/s/ Dr. David J. Greenblatt, M.D.**

Dr. David J. Greenblatt, M.D.

07/09/2019

**David J. Greenblatt, M. D.**  
**July 9, 2019**

**Deposition or Trial Testimony In Last 4 Years**

2/5/2014

Deposition

Washington, DC

*Shire LLC, et al vs. Amneal, LLC et al and Watson Inc. et al*

U. S. District Court, District of New Jersey

C. A. No. 2:11-cv-03781 (SRC)(CLW) (Consolidated)

C. A. No. 2: 12-cv-00083-SRC-CL W

4/2/2014

Trial

Brockton, MA

*Vasa and Plante vs. Compass et al*

Plymouth SS Superior Court, Commonwealth of Mass.

C. A. No. 2007-01394-A and 2010-01309-B (consolidated)

4/6/2015 Trial

Fall River, MA

*Commonwealth vs. Aaron Hernandez*

Bristol, SS., Fall River Superior Court

Indictments 2013-00983

10/14/2015

Deposition

Boston, MA

*Williams vs. Maratachi*

Circuit Court of the 17th Judicial Circuit, Broward County, FL

Case No.: CACE 12010166

6/20/2016

Trial

Brockton, MA

*Baggia vs. Grotz et al*

Plymouth SS. Superior Court, Commonwealth of Mass.

Civil Action No. 11-00414-A

9/19/2016

Trial

Derry, NH

*State vs. Brian Webb*

New Hampshire Judicial Branch, 10th Circuit, Derry, NH

10/27/2016

Trial

Boston, MA

*Hi-Tech Pharmaceuticals vs. Pieter A. Cohen, M. D. et al*

United States District Court, District of Massachusetts

Docket No. 1:16-cv-10660-WGY

2/14/2017

Trial

Miami FL

*United States vs. Christopher R. Glenn*

U.S. District Court, Southern District of Florida

Case No. 15-CR-20632-RNS(s)

3/13/2017

Trial

Dedham MA

*Thou (adm. estate of S. Chin) vs. Russo*

Commonwealth of Massachusetts, Norfolk Superior Court

Docket Number 1382CV00638

10/11/2017

Deposition

Boston MA

*McDevitt vs. Boehringer Ingelheim, Inc.*

Superior Court J. D. at Hartford

Docket No. CPL-HHD-CV-15-6057664S (CLD X03)

11/13/2017

Deposition

Dedham MA

*van Dyke et al vs. van Hemelrijk et al*

State of Rhode Island and Providence Plantations

Washington SC Superior Court

C. A. No.: WC/13-506

1/25/2018  
Deposition  
Washington DC  
*AstraZeneca vs. Amneal*  
U. S. District Court for the District of Delaware  
Civil Action No. 15-1056-RGA and 15-1000-RGA

6/15/2018  
Deposition  
Boston, MA  
*Abu-Ali Abdur'Rahman et al v. Tony Parker et al*  
Chancery Court for State of Tennessee, Twentieth Judicial District, Davidson  
County, TN, Part III  
Case No. 18-183-II (III)

7/9/2018  
Deposition  
Boston MA  
*Kolner vs. Federal Express Corp, et al*  
Circuit Court of 19<sup>th</sup> Judicial Circuit, Indian River County, FL  
Case No. 312014CA001208XXXXXX

7/10/2018 & 7/16/2018  
Trial  
Nashville, TN  
*Abu-Ali Abdur'Rahman et al v. Tony Parker et al*  
Chancery Court for State of Tennessee, Twentieth Judicial District, Davidson  
County, TN, Part III  
Case No. 18-183-II (III)

9/20/2018  
Trial  
Salem, NH  
*State of New Hampshire vs. Jeffrey Adams*

12/10/2018  
Trial  
Philadelphia, PA  
*United States vs. Emma Semler*  
U. S. District Court, Eastern District of Pennsylvania  
CRIM. No. 17-CR-120

12/12/2018

Hearing

Dayton, OH

*In re Ohio Execution Protocol Litigation*

U.S. District Court, Southern District of Ohio

Case No. 2:11-cv-1016

C U R R I C U L U M   V I T A E

DAVID J. GREENBLATT, M.D.

Current Title:

Louis Lasagna Endowed Professor, Department of Immunology (formerly the Department of Pharmacology and Experimental Therapeutics); Professor of Psychiatry, Medicine, and Anesthesia, Tufts University School of Medicine; Special and Scientific Staff (Research), Tufts Medical Center, Boston MA

Education and Training:

1966	B.A. Amherst College (magna cum laude)
1970	M.D. Harvard Medical School
1970-1971	Medical Intern, Montefiore Hospital and Medical Center, Bronx, NY
1971-1972	Assistant Medical Resident, Harvard Medical Service, Boston City Hospital
1972-1974	Research Fellow in Pharmacology, Harvard Medical School; Fellow in Medicine (Clinical Pharmacology), Massachusetts General Hospital

## Professional Appointments:

Harvard Medical School and Massachutte General Hospital

1974-1979	Assistant Professor of Medicine, Harvard Medical School; Assistant in Medicine, Massachusetts General Hospital
1976-1979	Chief, Clinical Pharmacology Unit, Massachusetts General Hospital

Tufts University School of Medicine (TUSM) and Tufts Medical Center (TMC):

1979-present	Professor of Psychiatry, Tufts University School of Medicine, Boston MA (TUSM)
1979-2015	Associate Medical Staff, Tufts Medical Center (TMC)
2015-	Special and Scientific Staff (Research), TMC
1979-1984	Associate Professor of Medicine, TUSM
1983-1996, 2001-2002	Chair, Institutional Review Board, TMC/TUSM
1984-present	Professor of Medicine, TUSM
1988-1991	Professor of Pharmacology, TUSM
1991-present	Professor of Pharmacology and Experimental Therapeutics (with tenure), TUSM
1994-2010	Chairman, Department of Pharmacology and Experimental Therapeutics, TUSM
1995-present	Professor of Anesthesia, TUSM
1995-2002	Program Director, General Clinical Research Center, TMC

1997-present	Louis Lasagna Endowed Professor of Pharmacology and Experimental Therapeutics, TUSM
2002-2010	Associate Program Director, Clinical/Translational Research Center, TMC/TUSM

Awards and Honors:

1972-74	Research Fellow of the Medical Foundation, Inc., Boston
1978-87	Pfizer Lecturer in Clinical Pharmacology (at various institutions)
1980	Rawls-Palmer Progress in Medicine Award and Lecture, American Society for Clinical Pharmacology and Therapeutics
1980	Clinical Pharmacology Unit Developmental Grant, Pharmaceutical Manufacturers' Association Foundation, Washington, D.C.
1981	Wellcome Visiting Professor in the Basic Medical Sciences (the Burroughs Wellcome Fund and Federation of American Societies for Experimental Biology), East Carolina University School of Medicine, Greenville, N.C.
1983	Paul Ehrlich Visiting Professor of Clinical Pharmacology, University of Miami School of Medicine
1984	Sterling Visiting Professor, Boston University School of Medicine
1985	The McKeen Cattell Award, (with Drs. O. Bellmann, H.R. Ochs, and M. Knüchel) American College of Clinical Pharmacology
1988	T. George Bidder Distinguished Lectureship in Psychopharmacology, University of California at Los Angeles
1997	Pfizer Visiting Professor of Clinical Pharmacology, Morehouse University School of Medicine, Atlanta, GA
2001	Distinguished Service Award, American College of Clinical Pharmacology
2002	Distinguished Investigator Award, American College of Clinical Pharmacology
2005	Research Achievement Award in Clinical Sciences, American Association of Pharmaceutical Scientists
2013	Outstanding Speaker Award, American Association for Clinical Chemistry
2015	Distinguished Faculty Award, Tufts University School of Medicine
2016	Award in Excellence in Clinical Pharmacology, Pharmaceutical Research and Manufacturers of America Foundation
2016	Man of Good Conscience Award, Association of Women Psychiatrists



Certification

1991 American Board of Clinical Pharmacology, Inc.

Editorial Boards

Journal of Clinical Psychopharmacology (Co-Editor-in-Chief)

Clinical Pharmacology in Drug Development (Editor-in-Chief)

Journal of Clinical Pharmacology

British Journal of Clinical Pharmacology (2011-2016)

Biopharmaceutics and Drug Disposition

Xenobiotica

Neuropsychopharmacology (1986-1990)

Drug Investigation

Drugs and Aging

Pharmacology and Toxicology

Drugs and Therapy Perspectives

Professional Societies

American Society for Clinical Investigation (Emeritus)

American Society for Pharmacology and Experimental Therapeutics

American Federation for Clinical Research

American Society for Clinical Pharmacology and Therapeutics  
Board of Directors, 1983-85

American College of Clinical Pharmacology  
Board of Regents, 1981-85, 1987-91;  
Honorary Regent, 1994-;  
President-Elect, 1994-1996;  
President, 1996-1998

American College of Neuropsychopharmacology (Fellow) (1974-2011)

International Society for the Study of Xenobiotics

British Pharmacological Society

ORIGINAL RESEARCH ARTICLES

1. Tursky B, Greenblatt DJ: Local vascular and thermal changes that accompany electric shock. Psychophysiology 3:371-380, 1967.
2. Greenblatt DJ, DiMascio A, Messier M, Stotsky B: Magnesium pemoline and job performance in mentally handicapped workers. Clinical Pharmacology and Therapeutics 10:530-533, 1969.
3. Greenblatt DJ, Tursky B: Local vascular and impedance changes induced by electric shock. American Journal of Physiology 216:712-718, 1969.
4. Tursky B, Greenblatt DJ, O'Connell DN: Electrocutaneous threshold changes produced by electric shock. Psychophysiology 7:490-498, 1970.
5. Greenblatt DJ, Shader RI: Psychopharmacologic management of anxiety in the cardiac patient. Psychiatry in Medicine 2:490-498, 1970.
6. Greenblatt DJ, Shader RI: Meprobamate: a study of irrational drug use. American Journal of Psychiatry 127:1297-1303, 1971.
7. Greenblatt DJ, Shader RI: The clinical choice of sedative-hypnotics. Annals of Internal Medicine 77:91-100, 1972.
8. Greenblatt DJ, Shader RI: On the psychopharmacology of beta adrenergic blockade. Current Therapeutic Research 14:615-625, 1972.
9. Greenblatt DJ, Koch-Weser J: Adverse reactions to spironolactone: a report from the Boston Collaborative Drug Surveillance Program. Journal of the American Medical Association 225:40-43, 1973.
10. Greenblatt DJ, Shader RI: Anticholinergics. New England Journal of Medicine 288:1215-1219, 1973.
11. Greenblatt DJ, Koch-Weser J: Adverse reactions to propranolol in hospitalized medical patients: a report from the Boston Collaborative Drug Surveillance Program. American Heart Journal 86:478-484, 1973.
12. Greenblatt DJ, Koch-Weser J: Adverse reactions to intravenous diazepam: a report from the Boston Collaborative Drug Surveillance Program. American Journal of Medical Sciences 266:261-266, 1973.
13. Greenblatt DJ, Duhme DW, Koch-Weser J, Smith TW: Evaluation of digoxin bioavailability in single-dose studies. New England Journal of Medicine 289:651-654, 1973.
14. Greenblatt DJ, Koch-Weser J: Adverse reactions to beta-adrenergic receptor blocking drugs: a report from the Boston Collaborative Drug Surveillance Program. Drugs 7:118-129, 1974.
15. Greenblatt DJ, Shader RI: Drug abuse and the emergency room physician. American Journal of Psychiatry 131:559-562, 1974.
16. Duhme DW, Greenblatt DJ, Koch-Weser J: Reduction of digoxin toxicity associated with measurement of serum levels: a report from the Boston Collaborative Drug Surveillance Program. Annals of Internal Medicine 80:516-519, 1974.
17. Koch-Weser J, Duhme DW, Greenblatt DJ: Influence of serum digoxin concentration measurements on frequency of digitoxicity. Clinical Pharmacology and Therapeutics 16:284-287, 1974.

18. Greenblatt DJ, Duhme DW, Koch-Weser J, Smith TW: Intravenous digoxin as a bioavailability standard: slow infusion and rapid injection. Clinical Pharmacology and Therapeutics 15:510-513, 1974.
19. Greenblatt DJ, Koch-Weser J: Oral contraceptives and hypertension: a report from the Boston Collaborative Drug Surveillance Program. Obstetrics and Gynecology 44:412-417, 1974.
20. Greenblatt DJ, Duhme DW, Koch-Weser J, Smith TW: Equivalent bioavailability from digoxin elixir and rapid-dissolution tablets. Journal of the American Medical Association 229:1774-1776, 1974.
21. Greenblatt DJ, Shader RI, Koch-Weser J. Pharmacokinetic determinants of the response to single doses of chlordiazepoxide. American Journal of Psychiatry 131:1395-1397, 1974.
22. Greenblatt DJ, Koch-Weser J: Clinical toxicity of chlordiazepoxide and diazepam in relation to serum albumin concentration: a report from the Boston Collaborative Drug Surveillance Program. European Journal of Clinical Pharmacology 7:259-262, 1974.
23. Greenblatt DJ, Duhme DW, Koch-Weser J, Smith TW: Bioavailability of digoxin tablets and elixir in the fasting and postprandial states. Clinical Pharmacology and Therapeutics 16:444-448, 1974.
24. Greenblatt DJ, Shader RI, Koch-Weser J, Franke K: Slow absorption of intramuscular chlordiazepoxide. New England Journal of Medicine 291:1116-1118, 1974.
25. Greenblatt DJ, Duhme DW, Koch-Weser J, Smith TW: Comparison of one- and six-day urinary digoxin excretion in single-dose bioavailability studies. Clinical Pharmacology and Therapeutics 16:813-816, 1974.
26. Greenblatt DJ, Shader RI: Benzodiazepines. New England Journal of Medicine 291:1011-1015, 1239-1241, 1974.
27. Greenblatt DJ, Shader RI, Koch-Weser J: Flurazepam hydrochloride. Clinical Pharmacology and Therapeutics 17:1-14, 1975.
28. Sokol GH, Greenblatt DJ, Littman P, Franke K, Koch-Weser J: Chlordiazepoxide metabolism in mice following hepatic irradiation. Pharmacology 13:248-251, 1975.
29. Greenblatt DJ, Shader RI, Koch-Weser J: Psychotropic drug use in the Boston area: a report from the Boston Collaborative Drug Surveillance program. Archives of General Psychiatry 32:518-521, 1975.
30. Shader RI, Greenblatt DJ, Salzman C, Kochansky GE, Harmatz JS: Benzodiazepines: safety and toxicity. Diseases of the Nervous System 36(No.5, Sect.2):23-26, (May) 1975.
31. Greenblatt DJ, Shader RI, Koch-Weser J: Pharmacokinetics in clinical medicine: oxazepam versus other benzodiazepines. Diseases of the Nervous System 36(No.5, Sect.2):6-13, (May) 1975.
32. Greenblatt DJ, Shader RI, Koch-Weser J: Flurazepam hydrochloride, a benzodiazepine hypnotic. Annals of Internal Medicine 83:237-241, 1975.
33. Koup JR, Greenblatt DJ, Jusko WJ, Smith TW, Koch-Weser J: Pharmacokinetics of digoxin in normal subjects after intravenous bolus and infusion doses. Journal of Pharmacokinetics and Biopharmaceutics 3:181-192, 1975.

34. Greenblatt DJ, Koch-Weser J: Clinical pharmacokinetics. New England Journal of Medicine 293:702-705, 964-970, 1975.
35. Greenblatt DJ, Allen MD, Koch-Weser J: Accidental poisoning with psychotropic drugs in children. American Journal of Diseases in Children 130:507-511, 1976.
36. Greenblatt DJ, Shader RI, Koch-Weser J. Serum creatine phosphokinase concentrations after intramuscular chlordiazepoxide and its solvent. Journal of Clinical Pharmacology 16:118-121, 1976.
37. Greenblatt DJ, Bolognini V, Koch-Weser J, Harmatz JS: Pharmacokinetic approach to the clinical use of lidocaine intravenously. Journal of the American Medical Association 236:273-277, 1976.
38. Pfeifer HJ, Greenblatt DJ, Koch-Weser J: Clinical use and toxicity of intravenous lidocaine: a report from the Boston Collaborative Drug Surveillance Program. American Heart Journal 92:168-173, 1976.
39. Greenblatt DJ, Duhme DW, Koch-Weser J, Smith TW: Assessment of methodology in single-dose studies of digoxin bioavailability. Pharmacology 14:182-190, 1976.
40. Greenblatt DJ, Shader RI, Lofgren S: Rational psychopharmacology for patients with medical diseases. Annual Review of Medicine 27:407-420, 1976.
41. Greenblatt DJ, Shader RI, Harmatz JS, Franke K, Koch-Weser J: Influence of magnesium and aluminum hydroxide mixture on chlordiazepoxide absorption. Clinical Pharmacology and Therapeutics 19:234-239, 1976.
42. Greenblatt DJ, Smith TW, Koch-Weser J: Bioavailability of drugs: the digoxin dilemma. Clinical Pharmacokinetics 1:36-51, 1976.
43. Greenblatt DJ, Ransil BJ, Harmatz JS, Smith TW, Duhme DW, Koch-Weser J: Variability of 24-hour urinary creatinine excretion by normal subjects. Journal of Clinical Pharmacology 16:321-328, 1976.
44. Stanski DR, Greenblatt DJ, Lappas DG, Koch-Weser J, Lowenstein E: Kinetics of high dose intravenous morphine in cardiac surgery patients. Clinical Pharmacology and Therapeutics 19:752-756, 1976.
45. Pfeifer HJ, Greenblatt DJ, Koch-Weser J: Clinical toxicity of reserpine in hospitalized patients: a report from the Boston Collaborative Drug Surveillance Program. American Journal of Medical Sciences 271:269-276, 1976.
46. DiMascio A, Bernardo DL, Greenblatt DJ, Marder JE: A controlled trial of amantadine in drug-induced extrapyramidal disorders. Archives of General Psychiatry 33:599-602, 1976.
47. Greenblatt DJ, Schillings RT, Kyriakopoulos AA, Shader RI, Sisenwine SF, Knowles JA, Ruelius HW: Clinical pharmacokinetics of lorazepam. I. Absorption and disposition of oral <sup>14</sup>C-lorazepam. Clinical Pharmacology and Therapeutics 20:329-341, 1976.
48. Stanski DR, Greenblatt DJ, Selwyn A, Shader RI, Franke K, Koch-Weser J: Plasma and cerebrospinal fluid concentrations of chlordiazepoxide and its metabolites in surgical patients. Clinical Pharmacology and Therapeutics 20:571-578, 1976.

49. Greenblatt DJ, Koch-Weser J: Intramuscular injection of drugs. New England Journal of Medicine 295:542-546, 1976.
50. Greenblatt DJ, Duhme DW, Allen MD, Koch-Weser J: Clinical toxicity of furosemide in hospitalized patients: a report from the Boston Collaborative Drug Surveillance Program. American Heart Journal 94:6-13, 1977.
51. Allen MD, Greenblatt DJ: Accidental salicylate poisoning. Paediatrician 6:244-249, 1977.
52. Greenblatt DJ, Shader RI, Harmatz JS, Franke K, Koch-Weser J: Absorption rate, blood concentrations, and early response to oral chlordiazepoxide. American Journal of Psychiatry 134:559-562, 1977.
53. Greenblatt DJ, Joyce TH, Comer WH, Knowles JA, Shader RI, Kyriakopoulos AA, MacLaughlin DS, Ruelius HW: Clinical pharmacokinetics of lorazepam. II. Intramuscular injection. Clinical Pharmacology and Therapeutics 21:222-230, 1977.
54. Ransil BJ, Greenblatt DJ, Koch-Weser J: Evidence for systematic temporal variation in 24-hour urinary creatinine excretion. Journal of Clinical Pharmacology 17:108-119, 1977.
55. Greenblatt DJ, Comer WH, Elliott HW, Shader RI, Knowles JA, Ruelius HW: Clinical pharmacokinetics of lorazepam. III. Intravenous injection (preliminary report). Journal of Clinical Pharmacology 17:490-494, 1977.
56. Greenblatt DJ, Knowles JA, Comer WN, Shader RI, Harmatz JS, Ruelius HW: Clinical pharmacokinetics of lorazepam. IV. Long-term oral administration. Journal of Clinical Pharmacology 17:495-500, 1977.
57. Ameer B, Greenblatt DJ: Acetaminophen. Annals of Internal Medicine 87:202-209, 1977.
58. Greenblatt DJ, Pfeifer HJ, Ochs HR, Franke K, MacLaughlin DS, Smith TW, Koch-Weser J: Pharmacokinetics of quinidine in humans after intravenous, intramuscular and oral administration. Journal of Pharmacology and Experimental Therapeutics 202:365-378, 1977.
59. Greenblatt DJ, Allen MD, Shader RI: Toxicity of high-dose flurazepam in the elderly. Clinical Pharmacology and Therapeutics 21:355-361, 1977.
60. Greenblatt DJ, DiMascio A, Harmatz JS, Bernardo DL, Marder JR: Pharmacokinetics and clinical effects of amantadine in drug-induced extrapyramidal symptoms. Journal of Clinical Pharmacology 17:704-708, 1977.
61. Greenblatt DJ, Allen MD, Noel BJ, Shader RI: Acute overdosage with benzodiazepine derivatives. Clinical Pharmacology and Therapeutics 21:497-514, 1977.
62. Shader RI, Greenblatt DJ: Clinical implications of benzodiazepine pharmacokinetics. American Journal of Psychiatry 134:652-656, 1977.
63. Pfeifer HJ, Greenblatt DJ, Koch-Weser J: Adverse reactions to practolol in hospitalized patients: a report from the Boston Collaborative Drug Surveillance Program. European Journal of Clinical Pharmacology 12:167-170, 1977.
64. Allen MD, Greenblatt DJ, Noel BJ: Meprobamate overdosage: a continuing problem. Clinical Toxicology 11:501-516, 1977.

65. Greenblatt DJ, Harmatz JS, Stanski DR, Shader RI, Franke K, Koch-Weser J: Factors influencing blood concentrations of chlordiazepoxide: a use of multiple regression analysis. Psychopharmacology 54:277-282, 1977.
66. Greenblatt DJ, Shader RI, Franke K, MacLaughlin DS, Ransil BJ, Koch-Weser J : Kinetics of intravenous chlordiazepoxide: sex differences in drug distribution. Clinical Pharmacology and Therapeutics 22:893-903, 1977.
67. Shader RI, Greenblatt DJ, Harmatz JS, Franke K, Koch-Weser J: Absorption and disposition of chlordiazepoxide in young and elderly male volunteers. Journal of Clinical Pharmacology 17:709-718, 1977.
68. Greenblatt DJ, Harmatz JS, Shader RI: Sex differences in diazepam protein binding in patients with renal insufficiency. Pharmacology 16:26-29, 1978.
69. Ochs HR, Greenblatt DJ, Bodem G, Smith TW: Sprinolactone. American Heart Journal 96:389-400, 1978.
70. Pfeifer HJ, Greenblatt DJ: Clinical toxicity of theophylline in relation to cigarette smoking: a report from the Boston Collaborative Drug Surveillance Program. Chest 73:455-459, 1978.
71. Greenblatt DJ: Determination of desmethyldiazepam in plasma by electron-capture GLC: application to pharmacokinetic studies of clorazepate. Journal of Pharmaceutical Science 67:427-429, 1978.
72. Gayes JM, Greenblatt DJ, Lloyd BL, Harmatz JS, Smith TW: Cerebrospinal fluid digoxin concentrations in humans. Journal of Clinical Pharmacology 18:177-179, 1978.
73. Greenblatt DJ, Harmatz JS, Shader RI: Factors influencing diazepam pharmacokinetics. International Journal of Clinical Pharmacology and Biopharmacy 16:177-179, 1978.
74. Ochs HR, Bodem G, Bales G, Greenblatt DJ, Smith TW: Increased Clearance of digoxin in rabbits during repeated administration. Journal of Pharmacology and Experimental Therapeutics 205:516-524, 1978.
75. Ochs HR, Greenblatt DJ, Woo E, Franke K, Pfeifer JH, Smith TW: Single- and multiple-dose pharmacokinetics of oral quinidine sulfate and gluconate. American Journal of Cardiology 41:770-777, 1978.
76. Greenblatt DJ, Shader RI, Weinberger DR, Allen MD, MacLaughlin DS: Effect of a cocktail on diazepam absorption. Psychopharmacology 57:199-203, 1978.
77. Greenblatt DJ, Franke K, Huffman DH: Impairment of antipyrine clearance in humans by propranolol. Circulation 57:1161-1164, 1978.
78. Greenblatt DJ, Allen MD: Intramuscular injection-site complications. Journal of the American Medical Association 240:542-544, 1978.
79. Greenblatt DJ, Shader RI, Franke K, Harmatz JS: Pharmacokinetics of chlordiazepoxide and metabolites following single and multiple oral doses. International Journal of Clinical Pharmacology and Biopharmacy 16:486-493, 1978.
80. Lloyd BL, Greenblatt DJ, Allen MD, Harmatz JS, Smith TW: Pharmacokinetics and bioavailability of digoxin capsules, solution,

and tablets after single and multiple doses. American Journal of Cardiology 42:129-146, 1978.

81. Greenblatt DJ, Allen MD: Toxicity of nitrazepam in the elderly: a report from the Boston Collaborative Drug Surveillance Program. British Journal of Clinical Pharmacology 5:407-413, 1978.
82. Ochs HR, Greenblatt DJ, Woo E, Franke K, Smith TW: Effect of propranolol on pharmacokinetics and acute electrocardiographic changes following intravenous quinidine in humans. Pharmacology 17:301-306, 1978.
83. Greenblatt DJ, Shader RI, MacLeod SM, Sellers EM, Franke K, Giles HG: Absorption of oral and intramuscular chlordiazepoxide. European Journal of Clinical Pharmacology 13:267-274, 1978.
84. Ochs HR, Greenblatt DJ, Dengler JH: Absorption of oral tetracycline in patients with Billroth-II gastrectomy. Journal of Pharmacokinetics and Biopharmaceutics 6:295-303, 1978.
85. Ochs HR, Greenblatt DJ, Bodem G, Harmatz JS: Dose-independent pharmacokinetics of digoxin in humans. American Heart Journal 97:507-511, 1978.
86. Greenblatt DJ, Woo E, Allen MD, Orsulak PJ, Shader RI: Rapid recovery from massive diazepam overdose. Journal of the American Medical Association 240:1872-1874, 1978.
87. Greenblatt DJ, Shader RI, MacLeod SM, Sellers EM: Clinical pharmacokinetics of chlordiazepoxide. Clinical Pharmacokinetics 3:381-394, 1978.
88. Sokol GH, Greenblatt DJ, Lloyd BL, Georgotas A, Allen MD, Harmatz JS, Smith TW, Shader RI: Effect of abdominal radiation therapy on drug absorption in humans. Journal of Clinical Pharmacology 18:388-396, 1978.
89. Ochs HR, Greenblatt DJ, Woo E, Smith TW: Reduced quinidine clearance in elderly persons. American Journal of Cardiology 42:481-485, 1978.
90. Greenblatt DJ, Franke K, Shader RI: Analysis of lorazepam and its glucuronide metabolite by electron-capture gas-liquid chromatography: use in pharmacokinetic studies of lorazepam. Journal of Chromatography 146: 311-320, 1978.
91. Shader RI, Georgotas A, Greenblatt DJ, Harmatz JS, Allen MD: Impaired absorption of desmethyldiazepam from clorazepate by magnesium aluminum hydroxide. Clinical Pharmacology and Therapeutics 24:308-315, 1978.
92. Woo E, Greenblatt DJ, Ochs HR: Short- and long-acting quinidine preparations: clinical implications of pharmacokinetic differences. Angiology 29:243-250, 1978.
93. MacLeod SM, Sellers EM, Giles HG, Billings BJ, Martin PR, Greenblatt DJ, Marshman JA. Interaction of disulfiram with benzodiazepines. Clinical Pharmacology and Therapeutics 24:583-589, 1978.
94. Sellers EM, Greenblatt DJ, Zilm DH, Degani N: Decline in chlordiazepoxide plasma levels during fixed-dose therapy of alcohol withdrawal. British Journal of Clinical Pharmacology 6:370-372, 1978.
95. Greenblatt DJ, Shader RI: Pharmacokinetic understanding of antianxiety drug therapy. Southern Medical Journal 71(Suppl 2): 2-9, 1978.

96. Greenblatt DJ, Shader RI: Dependence, tolerance, and addiction to benzodiazepines: clinical and pharmacokinetic considerations. Drug Metabolism Reviews 8:13-28, 1978.
97. Greenblatt DJ: Simultaneous gas chromatographic analysis for diazepam and its major metabolite, desmethyldiazepam, with use of double internal standardization. Clinical Chemistry 24:1838-1841, 1978.
98. Greenblatt DJ, Allen MD, MacLaughlin DS, Harmatz JS, Shader RI: Diazepam absorption: effect of antacids and food. Clinical Pharmacology and Therapeutics 24:600-609, 1978.
99. MacLeod SM, Sellers EM, Giles HG, Billings BJ, Martin PR, Greenblatt DJ, Marshman JA: The interaction of disulfiram with benzodiazepines. Clinical Pharmacology and Therapeutics 24:583-589, 1978.
100. Stanski DR, Greenblatt DJ, Lowenstein E: Kinetics of intravenous and intramuscular morphine. Clinical Pharmacology and Therapeutics 24:52-59, 1978.
101. Greenblatt DJ, Shader RI: Prazepam and lorazepam, two new benzodiazepines. New England Journal of Medicine 299:1342-1344, 1978.
102. Mudge GH, Lloyd BL, Greenblatt DJ, Smith TW: Inotropic and toxic effects of a polar cardiac glycoside derivative in the dog. Circulation Research 43:847-854, 1978.
103. Greenblatt DJ, Allen MD, Harmatz JS, Noel BJ, Shader RI: Correlates of outcome following acute glutethimide overdosage. Journal of Forensic Sciences 24:76-86, 1979.
104. Greenblatt DJ, Shader RI, Franke K, MacLaughlin DS, Harmatz JS, Allen MD, Werner A, Woo E: Pharmacokinetics and bioavailability of intravenous, intramuscular and oral lorazepam in humans. Journal of Pharmaceutical Sciences 68:57-63, 1979.
105. Greenblatt DJ: Reduced serum albumin concentration in the elderly: a report from the Boston Collaborative Drug Surveillance Program. Journal of the American Geriatrics Society 27:20-22, 1979.
106. Miller RR, Porter J, Greenblatt DJ: Clinical importance of the interaction of phenytoin and isoniazid: a report from the Boston Drug Surveillance Program. Chest 75:356-358, 1979.
107. Greenblatt DJ: Predicting steady-state serum concentrations of drugs. Annual Review of Pharmacology and Toxicology 19:347-356, 1979.
108. Woo E, Greenblatt DJ: Pharmacokinetic and clinical implications of quinidine protein binding. Journal of Pharmaceutical Sciences 68:466-470, 1979.
109. Woo E, Greenblatt DJ: Massive benzodiazepine requirements during acute alcohol withdrawal: a clinical and pharmacokinetic study. American Journal of Psychiatry 136:821-823, 1979.
110. Greenblatt DJ, Allen MD, MacLaughlin DS, Huffman DH, Harmatz JS, Shader RI: Single- and multiple-dose kinetics of oral lorazepam in humans: the predictability of accumulation. Journal of Pharmacokinetics and Biopharmaceutics 7:159-179, 1979.



111. Lowenthal IS, Parker LM, Greenblatt DJ, Brown BL, Samy TSA: Pharmacokinetic analysis of neocarzinostatin in normal and tumor-bearing rodents. Cancer Research 39:1547-1551, 1979.
112. Greenblatt DJ, Allen MD, Locniskar A, Harmatz JS, Shader RI: Lorazepam kinetics in the elderly. Clinical Pharmacology and Therapeutics 26:103-113, 1979.
113. Pfeifer HJ, Greenblatt DJ, Friedman P: Effect of three antibiotics on theophylline kinetics. Clinical Pharmacology and Therapeutics 26:36-40, 1979.
114. Sellers EM, Greenblatt DJ, Giles HG, Naranjo CA, Kaplan H, MacLeod SM: Chlordiazepoxide and oxazepam disposition in cirrhosis. Clinical Pharmacology and Therapeutics 26:240-246, 1979.
115. Allen MD, Greenblatt DJ, Harmatz JS, Shader RI: Single-dose kinetics of prazepam, a precursor of desmethyldiazepam. Journal of Clinical Pharmacology 19:445-450, 1979.
116. Greenblatt DJ, Locniskar A: Spectrophotometric assay of antipyrine in plasma: a reevaluation. International Journal of Clinical Pharmacology and Biopharmacy 17:401-404, 1979.
117. Ochs HR, Grube E, Greenblatt DJ, Woo E, Bodem G: Intravenous quinidine: pharmacokinetic properties and effects on left ventricular performance in humans. American Heart Journal 99:468-475, 1980.
118. Greenblatt DJ, Allen MD, Harmatz JS, Noel BJ, Shader RI: Overdosage with pentobarbital and secobarbital: assessment of factors related to outcome. Journal of Clinical Pharmacology 19:758-768, 1979.
119. Allen MD, Greenblatt DJ, Noel BJ: Self-poisoning with over-the-counter hypnotics. Clinical Toxicology 15:151-158, 1979.
120. Ochs HR, Greenblatt DJ, Allen MD, Harmatz JS, Shader RI, Bodem G: Effect of age and Billroth gastrectomy on absorption of desmethyl-diazepam from clorazepate. Clinical Pharmacology and Therapeutics 26:449-456, 1979.
121. Greenblatt DJ, Allen MD, Harmatz JS, Shader RI: Diazepam disposition determinants. Clinical Pharmacology and Therapeutics 27:301-312, 1980.
122. Ochs HR, Greenblatt DJ, Harmatz JS, Bodem G: Serum digoxin concentrations and subjective manifestations of toxicity. Pharmacology 20:149-154, 1980.
123. Greenblatt DJ, Shader RI, Harmatz JS, Georgotas A: Self-rated sedation and plasma concentrations of desmethyldiazepam following single doses of clorazepate. Psychopharmacology 66:289-290, 1979.
124. Ochs HR, Greenblatt DJ, Lloyd BL, Woo E, Sonntag M, Smith TW: Entry of quinidine into cerebrospinal fluid. American Heart Journal 100:341-346, 1980.
125. Allen MD, Greenblatt DJ, Arnold JD: Single and multiple dose kinetics of estazolam, a triazolo benzodiazepine. Psychopharmacology 66:267-274, 1979.
126. Winokur A, Rickels K, Greenblatt DJ, Snyder PJ, Schatz NJ: Withdrawal reaction from chronic, low-dose diazepam administration: a double-

- blind placebo-controlled case study. Archives of General Psychiatry 37:101-105, 1980.
127. Allen MD, Greenblatt DJ, Noel BJ: Overdosage with antipsychotic agents. American Journal of Psychiatry 137:234-236, 1980.
  128. Woo E, Greenblatt DJ: Effect of food on enteral absorption of quinidine. Clinical Pharmacology and Therapeutics 27:188-193, 1980.
  129. Miller R, Greenblatt DJ: Clinical effects of chloral hydrate in hospitalized medical patients. Journal of Clinical Pharmacology 19:669-674, 1979.
  130. Allen MD, Greenblatt DJ: Comparative protein binding of diazepam and desmethyldiazepam. Journal of Clinical Pharmacology 21:219-223, 1981.
  131. Allen MD, Greenblatt DJ, Harmatz JS, Shader RI: Desmethyldiazepam kinetics in the elderly after oral prazepam. Clinical Pharmacology and Therapeutics 28:196-202, 1980.
  132. Allen MD, Greenblatt DJ, Harmatz JS, Smith TW: Effect of magnesium-aluminum hydroxide and kaolin-pectin on absorption of digoxin from tablets and capsules. Journal of Clinical Pharmacology 21:26-30, 1981.
  133. Ochs HR, Greenblatt DJ, Woo E: Clinical pharmacokinetics of quinidine. Clinical Pharmacokinetics 5:150-168, 1980.
  134. Greenblatt DJ: Electron-capture GLC determination of clobazam and desmethyldiazepam in plasma. Journal of Pharmaceutical Sciences 69:1351-1352, 1980.
  135. Krogstad DJ, Moellering RC, Greenblatt DJ: Single-dose kinetics of intravenous vancomycin. Journal of Clinical Pharmacology 20:197-201, 1980.
  136. Allen MD, Greenblatt DJ, LeCasse Y, Shader RI: Pharmacokinetic study of lorazepam overdose. American Journal of Psychiatry 137:1414-1415, 1980.
  137. Ochs HR, Busse J, Greenblatt DJ, Allen MD: Entry of lorazepam into cerebrospinal fluid. British Journal of Clinical Pharmacology 10:405-406, 1980.
  138. Greenblatt DJ, Laughren TP, Allen MD, Harmatz JS, Shader RI: Plasma diazepam and desmethyldiazepam concentrations during long-term diazepam therapy. British Journal of Clinical Pharmacology 11:35-40, 1981.
  139. Greenblatt DJ, Ochs HR, Lloyd BL: Entry of diazepam and its major metabolite into cerebrospinal fluid. Psychopharmacology 70:89-93, 1980.
  140. Ochs HR, Carstens G, Greenblatt DJ: Reduction in lidocaine clearance during continuous infusion and by coadministration of propranolol. New England Journal of Medicine 303:373-377, 1980.
  141. Greenblatt DJ, Divoll M, Harmatz JS, Shader RI: Oxazepam kinetics: effects of age and sex. Journal of Pharmacology and Experimental Therapeutics 215:86-91, 1980.

142. Sellers EM, Giles HG, Greenblatt DJ, Naranjo CA: Differential effects on benzodiazepine disposition by disulfiram and ethanol. Arzneimittel Forschung 30:882-886, 1980.
143. Greenblatt DJ, Shader RI: Effects of age and other drugs on benzodiazepine kinetics. Arzneimittel Forschung 30:886-890, 1980.
144. Divoll M, Greenblatt DJ: Alcohol does not enhance diazepam absorption. Pharmacology 22:263-268, 1981.
145. Divoll M, Greenblatt DJ: Plasma concentrations of temazepam, a 3-hydroxy benzodiazepine, determined by electron-capture gas-liquid chromatography. Journal of Chromatography 222:125-128, 1981.
146. Ochs HR, Pabst J, Greenblatt DJ, Dengler HJ: Noninteraction of digitoxin and quinidine. New England Journal of Medicine 303:672-674, 1980.
147. Ochs HR, Bodem G, Greenblatt DJ: Impairment of digoxin clearance by coadministration of quinidine. Journal of Clinical Pharmacology 21:396-400, 1981.
148. Ochs HR, Bodem G, Greenblatt DJ: Effect of dose on bioavailability of oral digoxin. European Journal of Clinical Pharmacology 19:53-55, 1981.
149. Moellering RC, Krogstad DJ, Greenblatt DJ: Vancomycin therapy in patients with impaired renal function: a nomogram for dosage. Annals of Internal Medicine 94:343-346, 1981.
150. Ochs HR, Greenblatt DJ, Bodem G: Single- and multiple-dose kinetics of intravenous digoxin. Clinical Pharmacology and Therapeutics 28:340-345, 1980.
151. Abernethy DR, Greenblatt DJ: Impairment of antipyrine metabolism by low-dose oral contraceptive steroids. Clinical Pharmacology and Therapeutics 29:106-110, 1981.
152. Ochs HR, Grube E, Greenblatt DJ, Arendt R: Intravenous quinidine in congestive cardiomyopathy. European Journal of Clinical Pharmacology 19:173-176, 1981.
153. Ochs HR, Greenblatt DJ, Divoll M, Abernethy DR, Feyerabend H, Dengler HJ: Diazepam kinetics in relation to age and sex. Pharmacology 23:24-30, 1981.
154. Ochs HR, Greenblatt DJ, Roberts G-M, Dengler JH: Diazepam interaction with antituberculosis drugs. Clinical Pharmacology and Therapeutics 29:671-678, 1981.
155. Greenblatt DJ, Locniskar A, Ochs HR, Lauven PM: Automated gas chromatography for studies of midazolam pharmacokinetics. Anesthesiology 55:176-179, 1981.
156. Divoll M, Greenblatt DJ, Lacasse Y, Shader RI: Benzodiazepine overdose: Plasma concentrations and clinical outcome. Psychopharmacology 73:381-383, 1981.
157. Divoll M, Greenblatt DJ, Ciraulo DA, Puri SK, Ho I, Shader RI: Clobazam kinetics: Intra-subject variability, and effect of food on absorption. Journal of Clinical Pharmacology 22:69-73, 1982.

158. Abernethy DR, Greenblatt DJ: Effects of desmethyldiazepam on diazepam kinetics: a study of effects of a metabolite on parent drug disposition. Clinical Pharmacology and Therapeutics 29:757-761, 1981.
159. Abernethy DR, Greenblatt DJ, Divoll M, Harmatz JS, Shader RI. Alterations in drug distribution and clearance due to obesity. Journal of Pharmacology and Experimental Therapeutics 217:681-685, 1981.
160. Divoll M, Greenblatt DJ, Harmatz JS, Shader RI: Effect of age and gender on disposition of temazepam. Journal of Pharmaceutical Sciences 70:1104-1107, 1981.
161. Greenblatt DJ: Clinical pharmacokinetics of oxazepam and lorazepam. Clinical Pharmacokinetics 6:88-105, 1981.
162. Ochs HR, Greenblatt DJ, Kaschell JH, Klehr U, Divoll M, Abernethy DR: Diazepam kinetics in patients with renal insufficiency or hyperthyroidism. British Journal of Clinical Pharmacology 12:829-832, 1981.
163. Greenblatt DJ, Divoll M, Moschitto LJ, Shader RI: Electron-capture gas chromatographic analysis of the triazolobenzodiazepines alprazolam and triazolam. Journal of Chromatography 225:202-207, 1981.
164. Greenblatt DJ, Divoll M, Puri SK, Ho I, Zinny MA, Shader RI: Clobazam kinetics in the elderly. British Journal of Clinical Pharmacology 12:631-636, 1981.
165. Browne TR, van Langenhove A, Costello CE, Biemann K, Greenblatt DJ: Kinetic equivalence of stable-isotope-labeled and unlabeled phenytoin. Clinical Pharmacology and Therapeutics 29:511-515, 1981.
166. Greenblatt DJ, Ochs HR, Locniskar A, Lauven PM: Automated electron-capture gas chromatographic analysis of flunitrazepam in plasma. Pharmacology 24:82-87, 1982.
167. Ochs HR, Greenblatt DJ, Harmatz JS, Bodem G, Dengler HJ: Clinical implications of serum digoxin concentrations. Klinische Wochenschrift 59:501-507, 1981.
168. Greenblatt DJ, Divoll M, Harmatz JS, MacLaughlin DS, Shader RI: Kinetics and clinical effects of flurazepam in young and elderly noninsomniacs. Clinical Pharmacology and Therapeutics 30:475-486, 1981.
169. Ameer B, Greenblatt DJ, Divoll M, Abernethy DR, Shargel L: High performance liquid chromatographic determination of acetaminophen in plasma: single dose pharmacokinetic studies. Journal of Chromatography 226:224-230, 1981.
170. Abernethy DR, Greenblatt DJ, Smith TW: Digoxin disposition in obesity: clinical pharmacokinetic investigation. American Heart Journal 102:740-744, 1981.
171. Ochs HR, Otten H, Greenblatt DJ, Dengler HJ: Diazepam absorption: effects of age, sex, and Billroth gastrectomy. Digestive Diseases and Sciences 27:225-230, 1982.
172. Arendt R, Ochs HR, Greenblatt DJ: Electron-capture GLC analysis of the thienodiazepine clotiazepam: preliminary pharmacokinetic studies. Arzneimittel Forschung 32:453-455, 1982.

173. Shader RI, Greenblatt DJ, Ciraulo DA, Divoll M, Harmatz JS, Georgotas A: Effect of age and sex on disposition of desmethyldiazepam formed from its precursor clorazepate. Psychopharmacology 75:193-197, 1981.
174. Greenblatt DJ, Divoll M, Harmatz JS, Shader RI: Pharmacokinetic comparison of sublingual lorazepam with intravenous, intramuscular, and oral lorazepam. Journal of Pharmaceutical Sciences 71:248-252, 1982.
175. Abernethy DR, Greenblatt DJ, Zumbo AM: Antipyrine determination of human plasma by gas-liquid chromatography using nitrogen-phosphorous detection. Journal of Chromatography 223:432-437, 1981.
176. Divoll M, Ameer B, Abernethy DR, Greenblatt DJ: Age does not alter acetaminophen absorption. Journal of the American Geriatrics Society 30:240-244, 1982.
177. Divoll M, Greenblatt DJ: Binding of diazepam and desmethyldiazepam to plasma protein: concentration-dependence and interactions. Psychopharmacology 75:380-382, 1981.
178. Ochs HR, Grube E, Greenblatt DJ, Arendt R, Bodem G: Pharmacokinetics and pharmacodynamics of intravenous digoxin and digitoxin. Klinische Wochenschrift 59:889-897, 1981.
179. Ochs HR, Greenblatt DJ, Otten H: Disposition of oxazepam in relation to age, sex, and cigarette smoking. Klinische Wochenschrift 59:899-903, 1981.
180. Abernethy DR, Greenblatt DJ, Shader RI: Tricyclic antidepressant determination in human plasma by gas-liquid chromatography using nitrogen-phosphorous detection: application to single-dose pharmacokinetic studies. Pharmacology 23:57-63, 1981.
181. Naranjo CA, Busto U, Sellers EM, Sandor P, Ruiz I, Roberts EA, Janecek E, Domecq C, Greenblatt DJ: A method for estimating the probability of adverse drug reactions. Clinical Pharmacology and Therapeutics 30:239-245, 1981.
182. Greenblatt DJ, Divoll M, Abernethy DR, Harmatz JS, Shader RI: Antipyrine kinetics in the elderly: prediction of age-related changes in benzodiazepine oxidizing capacity. Journal of Pharmacology and Experimental Therapeutics 220:120-126, 1982.
183. Divoll M, Greenblatt DJ: Effect of age and sex on lorazepam protein binding. Journal of Pharmacy and Pharmacology 34:122-124, 1982.
184. Shader RI, Ciraulo DA, Greenblatt DJ, Harmatz JS: Steady-state plasma desmethyldiazepam during long-term clorazepate use: effect of antacids. Clinical Pharmacology and Therapeutics 31:180-183, 1982.
185. Divoll M, Abernethy DR, Ameer B, Greenblatt DJ: Acetaminophen kinetics in the elderly. Clinical Pharmacology and Therapeutics 31:151-156, 1982.
186. Giles HG, Sellers EM, Naranjo CA, Frecker RC, Greenblatt DJ: Disposition of intravenous diazepam in young men and women. European Journal of Clinical Pharmacology 20:207-213, 1981.
187. Abernethy DR, Greenblatt DJ, Divoll M, Shader RI: Prolongation of drug half-life due to obesity: studies of desmethyldiazepam (Clorazepate). Journal of Pharmaceutical Sciences 71:942-944, 1982.

188. Greenblatt DJ, Divoll M, Abernethy DR, Moschitto LJ, Smith RB, Shader RI: Alprazolam kinetics in the elderly: relation to antipyrine disposition. Archives of General Psychiatry 40:287-290, 1983.
189. Abernethy DR, Divoll M, Ochs HR, Ameer B, Greenblatt DJ: Increased metabolic clearance of acetaminophen with oral contraceptive use. Obstetrics and Gynecology 60:338-341, 1982.
190. Abernethy DR, Greenblatt DJ, Divoll M, Arendt R, Ochs HR, Shader RI: Impairment of diazepam metabolism by low-dose estrogen oral contraceptive steroids. New England Journal of Medicine 306:791-792, 1982.
191. Martyn JAJ, Matteo RS, Greenblatt DJ, Lebowitz PW, Savarese JJ: Pharmacokinetics of d-tubocurarine in patients with thermal injury. Anesthesia and Analgesia 61:241-246, 1982.
192. Divoll M, Greenblatt DJ, Shader RI: Liquid chromatographic determination of chlordiazepoxide and metabolites in plasma. Pharmacology 24:261-266, 1982.
193. Abernethy DR, Divoll M, Greenblatt DJ, Ameer B: Obesity, sex, and acetaminophen disposition. Clinical Pharmacology and Therapeutics 31:783-790, 1982.
194. Ochs HR, Pabst J, Greenblatt DJ, Hartlapp J: Digitoxin accumulation. British Journal of Clinical Pharmacology 14:225-229, 1982.
195. Abernethy DR, Greenblatt DJ: Pharmacokinetics of drugs in obesity. Clinical Pharmacokinetics 7:108-124, 1982.
196. Greenblatt DJ, Sellers EM, Shader RI: Drug disposition in old age. New England Journal of Medicine 306:1081-1088, 1982.
197. Salzman C, Shader RI, Greenblatt DJ, Harmatz JS: Long versus short half-life benzodiazepines in the elderly: kinetics and clinical effects of diazepam and oxazepam. Archives of General Psychiatry 40:293-297, 1983.
198. Divoll M, Greenblatt DJ, Abernethy DR, Shader RI: Cimetidine impairs clearance of antipyrine and desmethyldiazepam in the elderly. Journal of the American Geriatrics Society 30:684-689, 1982.
199. Ochs HR, Gugler R, Guthoff T, Greenblatt DJ: Effect of cimetidine on digoxin kinetics and creatinine clearance. American Heart Journal 107:170-172, 1984.
200. Greenblatt DJ, Abernethy DR, Divoll M: Kinetics of low dose intravenous antipyrine: use of liquid chromatography. International Journal of Clinical Pharmacology 21:51-55, 1983.
201. Abernethy DR, Greenblatt DJ, Steel K, Shader RI: Impairment of hepatic drug oxidation by propoxyphene. Annals of Internal Medicine 97:223-224, 1982.
202. Ochs HR, Steinhaus E, Locniskar A, Knüchel M, Greenblatt DJ: Desmethyldiazepam kinetics after intravenous, intramuscular, and oral administration of clorazepate dipotassium. Klinische Wochenschrift 60:411-415, 1982.
203. Laughren TP, Battey Y, Greenblatt DJ, Harrop DS: A controlled trial of diazepam withdrawal in chronically ill anxious outpatients. Acta Psychiatrica Scandinavica 65:171-179, 1982.

204. Ochs HR, Grube E, Greenblatt DJ, Knüchel M, Bodem G: Kinetics and cardiac effects of propranolol in humans. Klinische Wochenschrift 60:521-525, 1982.
205. Abernethy DR, Greenblatt DJ: Diphenhydramine determination in human plasma by gas-liquid chromatography using nitrogen-phosphorous detection: application to single low-dose pharmacokinetic studies. Journal of Pharmaceutical Sciences 72:941-943, 1983.
206. Abernethy DR, Greenblatt DJ, Ochs HR: Lidocaine determination in human plasma with application to single low-dose pharmacokinetic studies. Journal of Chromatography 232:180-185, 1982.
207. Divoll M, Greenblatt DJ, Ochs HR, Shader RI: Absolute bioavailability of oral and intramuscular diazepam: effect of age and sex. Anesthesia and Analgesia 62:1-8, 1983.
208. Browne TR, Feldman RG, Buchanan RA, Allen NC, Fawcett-Vickers L, Szabo GK, Mattson GF, Norman SE, Greenblatt DJ: Methsuximide for complex partial seizures: efficacy, toxicity, clinical pharmacology, and drug interactions. Neurology 33:414-418, 1983.
209. Browne TR, van Langehove A, Costello CE, Biemann K, Greenblatt DJ: Pharmacokinetic equivalence of stable-isotope-labeled and unlabeled drugs. Phenobarbital in man. Journal of Clinical Pharmacology 22:309-315, 1982.
210. Greenblatt DJ, Divoll M, Puri SK, Ho I, Zinny MA, Shader RI: Reduced single-dose clearance of clobazam in elderly men predicts increased multiple-dose accumulation. Clinical Pharmacokinetics 8:83-94, 1983.
211. Abernethy DR, Greenblatt DJ, Divoll M, Ameer B, Shader RI: Differential effect of cimetidine on drug oxidation (antipyrine and diazepam) versus conjugation (acetaminophen and lorazepam): prevention of acetaminophen toxicity by cimetidine. Journal of Pharmacology and Experimental Therapeutics 224:508-513, 1983.
212. Martyn JAJ, Greenblatt DJ, Quinby WC: Diazepam kinetics in patients with severe burns. Anesthesia and Analgesia 62:293-297, 1983.
213. Divoll M, Greenblatt DJ, Ameer B, Abernethy DR: Effect of food on acetaminophen absorption in young and elderly subjects. Journal of Clinical Pharmacology 22:571-576, 1982.
214. Ameer B, Divoll M, Abernethy DR, Greenblatt DJ, Shargel L: Absolute and relative bioavailability of oral acetaminophen preparations. Journal of Pharmaceutical Sciences 72:955-958, 1983.
215. Abernethy DR, Arendt RM, Lauven PM, Greenblatt DJ: Determination of Ro15-1788, a benzodiazepine antagonist, in human plasma by GLC with nitrogen-phosphorous detection: application to single-dose pharmacokinetic studies. Pharmacology 26:285-289, 1983.
216. Greenblatt DJ, Arendt RM, Locniskar A: Ibuprofen pharmacokinetics: use of liquid chromatography with radial compression separation. Arzneimittel Forschung 33:1671-1673, 1983.
217. Greenblatt DJ, Divoll M, Abernethy DR, Moschitto LJ, Smith RB, Shader RI: Reduced clearance of triazolam in old age: relation to antipyrine oxidizing capacity. British Journal of Clinical Pharmacology 15:303-309, 1983.

218. Moschitto LJ, Greenblatt DJ: Concentration-independent plasma protein binding of benzodiazepines. Journal of Pharmacy and Pharmacology 35:179-180, 1983.
219. Ochs HR, Greenblatt DJ, Bodem G, Dengler HJ: Disease-related alterations in cardiac glycoside disposition. Clinical Pharmacokinetics 7:434-451, 1982.
220. Greenblatt DJ, Locniskar A, Shader RI: Pilot pharmacokinetic study of brotizolam, a thienodiazepine hypnotic, using electron-capture gas-liquid chromatography. Sleep 6:72-76, 1983.
221. Ochs HR, Carstens G, Roberts G-M, Greenblatt DJ: Metoprolol or propranolol does not alter the kinetics of procainamide. Journal of Cardiovascular Pharmacology 5:392-395, 1983.
222. Laughren TP, Battey YW, Greenblatt DJ: Chronic diazepam treatment in psychiatric outpatients. Journal of Clinical Psychiatry 43:461-462, 1982.
223. Abernethy DR, Greenblatt DJ, Ochs HR, Weyers D, Divoll M, Harmatz JS, Shader RI: Lorazepam and oxazepam kinetics in women on low-dose oral contraceptives. Clinical Pharmacology and Therapeutics 33:628-632, 1983.
224. Ochs HR, Skanderra D, Abernethy DR, Greenblatt DJ: Effect of penbutolol on lidocaine kinetics. Arzneimittel Forschung 33:1680-1681, 1983.
225. Ochs HR, Greenblatt DJ, Eckardt B, Harmatz JS, Shader RI: Repeated diazepam dosing in cirrhotic patients: cumulation and sedation. Clinical Pharmacology and Therapeutics 33:471-476, 1983.
226. Greenblatt DJ, Murray TG, Audet PR, Locniskar A, Koepke HH, Walker BR: Multiple-dose kinetics and dialyzability of oxazepam in renal insufficiency. Nephron 34:234-238, 1983.
227. Sellers EM, Sandor P, Giles HG, Khouw V, Greenblatt DJ: Diazepam pharmacokinetics after intravenous administration in alcohol withdrawal. British Journal of Clinical Pharmacology 15:125-127, 1983.
228. Abernethy DR, Greenblatt DJ, Divoll M, Moschitto LJ, Harmatz JS, Shader RI: Interaction of cimetidine with the triazolo benzodiazepines alprazolam and triazolam. Psychopharmacology 80:178-180, 1983.
229. Greenblatt DJ, Locniskar A, Shader RI: Halazepam as a precursor of desmethyldiazepam: quantitation by electron-capture gas-liquid chromatography. Psychopharmacology 80:178-180, 1983.
230. Abernethy DR, Greenblatt DJ, Divoll M, Shader RI: Enhanced glucuronide conjugation of drugs in obesity: studies of lorazepam, oxazepam, and acetaminophen. Journal of Laboratory and Clinical Medicine 101:873-880, 1983.
231. Ochs HR, Knüchel M, Abernethy DR, Greenblatt DJ: Dose-independent pharmacokinetics of intravenous lidocaine in humans. Journal of Clinical Pharmacology 23:186-188, 1983.
232. Greenblatt DJ, Abernethy DR, Divoll M, Locniskar A, Harmatz JS, Shader RI: Noninteraction of temazepam and cimetidine. Journal of Pharmaceutical Sciences 73:399-401, 1984.



233. Ochs HR, Greenblatt DJ, Gugler R, Müntefering G, Locniskar A, Abernethy DR: Cimetidine impairs nitrazepam clearance. Clinical Pharmacology and Therapeutics 34:227-230, 1983.
234. Greenblatt DJ, Abernethy DR, Divoll M, Shader RI: Close correlation of acetaminophen clearance with that of conjugated benzodiazepines but not oxidized benzodiazepines. European Journal of Clinical Pharmacology 25:113-115, 1983.
235. Carskadon MA, Seidel WF, Greenblatt DJ, Dement WC: Daytime carryover of triazolam and flurazepam in elderly insomniacs. Sleep 5:361-371, 1982.
236. Ochs HR, Schuppan U, Greenblatt DJ, Abernethy DR: Reduced distribution and clearance of acetaminophen in patients with congestive heart failure. Journal of Cardiovascular Pharmacology 5:697-700, 1983.
237. Ochs HR, Greenblatt DJ, Arendt RM, Hübbel W, Shader RI: Pharmacokinetic noninteraction of triazolam and ethanol. Journal of Clinical Psychopharmacology 4:106-107, 1984.
238. Garland WA, Miwa BJ, Dairman W, Kappell B, Chiueh MCC, Divoll M, Greenblatt DJ: Identification of 7-chloro-5-(2'-fluorophenyl)-2,3-dihydro-2-oxo-1H-1,4-benzodiazepine-1-acetaldehyde, a new metabolite of flurazepam in man. Drug Metabolism and Disposition 11:70-72, 1983.
239. Abernethy DR, Greenblatt DJ, Shader RI: Plasma levels of trazodone: methodology and clinical applications. Pharmacology 28:42-46, 1984.
240. Greenblatt DJ, Matlis R, Abernethy DR, Ochs HR: Improved liquid chromatographic analysis of phenytoin and salicylate using radial compression separation. Journal of Chromatography 275:450-457, 1983.
241. Abernethy DR, Greenblatt DJ, Divoll M, Shader RI: Prolonged accumulation of diazepam in obesity. Journal of Clinical Pharmacology 23:369-376, 1983.
242. Abernethy DR, Greenblatt DJ: Impairment of lidocaine clearance in elderly male subjects. Journal of Cardiovascular Pharmacology 5:1093-1096, 1983.
243. Greenblatt DJ, Divoll M, Shader RI: Automated gas chromatographic determination of plasma alprazolam concentrations. Journal of Clinical Psychopharmacology 3:366-368, 1983.
244. Vinik HR, Reves JG, Greenblatt DJ, Abernethy DR, Smith LR: The pharmacokinetics of midazolam in chronic renal failure patients. Anesthesiology 59:390-394, 1983.
245. Labedzki L, Ochs HR, Abernethy DR, Greenblatt DJ: Potentially toxic serum lidocaine concentrations following spray anesthesia for bronchoscopy. Klinische Wochenschrift 61:379-380, 1983.
246. Greenblatt DJ, Divoll M, Abernethy DR, Ochs HR, Shader RI: Clinical pharmacokinetics of the newer benzodiazepines. Clinical Pharmacokinetics 8:233-253, 1983.
247. Greenblatt DJ, Abernethy DR, Divoll M: Is volume of distribution at steady-state a meaningful kinetic variable? Journal of Clinical Pharmacology 23:391-400, 1983.

248. Greenblatt DJ, Arendt RM, Abernethy DR, Giles HG, Sellers EM, Shader RI: In vitro quantitation of benzodiazepine lipophilicity: relation to in vivo distribution. British Journal of Anaesthesia 55:985-989, 1983.
249. Smith RB, Divoll M, Gillespie WR, Greenblatt DJ: Effect of subject age and gender on the pharmacokinetics of oral triazolam and temazepam. Journal of Clinical Psychopharmacology 3:172-176, 1983.
250. Abernethy DR, Greenblatt DJ, Shader RI: Trimipramine kinetics and absolute bioavailability: use of gas-liquid chromatography with nitrogen-phosphorous detection. Clinical Pharmacology and Therapeutics 35:348-353, 1984.
251. Lister RG, File SE, Greenblatt DJ: The behavioral effects of lorazepam are poorly related to its concentration in the brain. Life Sciences 32:2033-2040, 1983.
252. Greenblatt DJ, Shader RI, Abernethy DR: Current status of benzodiazepines. New England Journal of Medicine 309:354-358, 410-416, 1983.
253. Mendelson WB, Weingartner H, Greenblatt DJ, Garnett D, Gillin JC: A clinical study of flurazepam. Sleep 5:350-360, 1982.
254. Ochs HR, Greenblatt DJ, Knüchel M: Differential effect of isoniazid on triazolam oxidation and oxazepam conjugation. British Journal of Clinical Pharmacology 16:743-746, 1983.
255. Divoll M, Greenblatt DJ, Arendt RM: Propranolol kinetics: use of automated liquid chromatography. International Journal of Clinical Pharmacology 22:457-460, 1984.
256. Arendt RM, Greenblatt DJ, deJong RH, Bonin JD, Abernethy DR, Ehrenberg BL, Giles HG, Sellers EM, Shader RI: In vitro correlates of benzodiazepine cerebrospinal fluid uptake, pharmacodynamic action, and peripheral distribution. Journal of Pharmacology and Experimental Therapeutics 227:95-106, 1983.
257. Abernethy DR, Greenblatt DJ: Ibuprofen does not impair antipyrine clearance. Journal of Clinical Pharmacology 23:517-522, 1983.
258. Abernethy DR, Greenblatt DJ, Divoll M, Smith RB, Shader RI: The influence of obesity on the pharmacokinetics of oral alprazolam and triazolam. Clinical Pharmacokinetics 9:177-183, 1984.
259. Ochs HR, Greenblatt DJ, Verburg-Ochs B, Abernethy DR, Knüchel M: Differential effects of isoniazid and oral contraceptive steroids on antipyrine oxidation and acetaminophen conjugation. Pharmacology 28:188-195, 1984.
260. Walker AM, Cody RJ, Greenblatt DJ, Jick H: Drug toxicity in patients receiving digoxin and quinidine. American Heart Journal 105:1025-1028, 1983.
261. Ochs HR, Greenblatt DJ, Heuer H: Is temazepam an accumulating hypnotic? Journal of Clinical Pharmacology 24:58-64, 1984.
262. Abernethy DR, Divoll M, Greenblatt DJ, Harmatz JS, Shader RI: Absolute bioavailability of imipramine: influence of food. Psychopharmacology 83:104-106, 1984.

263. Abernethy DR, Greenblatt DJ, Matlis R, Gugler R: Cimetidine disposition in obesity. American Journal of Gastroenterology 79:91-94, 1984.
264. Abernethy DR, Greenblatt DJ, Eshelman FN, Shader RI: Ranitidine does not impair oxidative or conjugative metabolism: noninteraction with antipyrine, diazepam, and lorazepam. Clinical Pharmacology and Therapeutics 35:188-192, 1984.
265. Greenblatt DJ, Shader RI, Divoll M, Harmatz JS: Adverse reactions to triazolam, flurazepam, and placebo in controlled clinical trials. Journal of Clinical Psychiatry 45:192-195, 1984.
266. Ochs HR, Greenblatt DJ, Verburg-Ochs B, Harmatz JS, Grehl H: Clotiazepam disposition: influence of age, sex, oral contraceptives, cimetidine, isoniazid, and ethanol. European Journal of Clinical Pharmacology 26:55-59, 1984.
267. Shader RI, Pary RJ, Harmatz JS, Allison S, Locniskar A, Greenblatt DJ: Plasma concentrations and clinical effects after single oral doses of prazepam, clorazepate, and diazepam. Journal of Clinical Psychiatry 45:411-413, 1984.
268. Lister RG, Abernethy DR, Greenblatt DJ, File SE: Methods for the determination of lorazepam and chlordiazepoxide and metabolites in brain tissue: a comparison with plasma concentrations in the rat. Journal of Chromatography 227:201-208, 1983.
269. Martyn JAJ, Abernethy DR, Greenblatt DJ: Plasma protein binding of drugs after severe burn injury. Clinical Pharmacology and Therapeutics 35:535-539, 1984.
270. Fabre LF, Johnson PA, Greenblatt DJ. Drowsiness sedation levels in anxious neurotic outpatients. Psychopharmacology Bulletin 20:128-136, 1984.
271. Arendt RM, Greenblatt DJ, Garland WA: Quantitation by gas chromatography of the 1- and 4-hydroxy metabolites of midazolam in human plasma. Pharmacology 29:158-164, 1984.
272. Ochs HR, Rauh HW, Greenblatt DJ, Kaschell JH: Clorazepate dipotassium and diazepam in renal insufficiency: serum concentrations and protein binding of diazepam and desmethyldiazepam. Nephron 37:100-104, 1984.
273. Ochs HR, Greenblatt DJ, Klehr U: Disposition of oxazepam in patients on maintenance hemodialysis. Klinische Wochenschrift 62:765-767, 1984.
274. Willis CR, Greenblatt DJ, Benjamin DM, Abernethy DR: Simultaneous determination of lidocaine and its deethylated metabolites using gas-liquid chromatography with nitrogen-phosphorous detection. Journal of Chromatography 307:200-205, 1984.
275. Abernethy DR, Greenblatt DJ, Ochs HR, Willis CR, Miller DD, Shader RI: Haloperidol determination in serum and cerebrospinal fluid using gas-liquid chromatography with nitrogen phosphorous detection: application to pharmacokinetic studies. Journal of Chromatography 307:194-199, 1984.
276. Greenblatt DJ, Abernethy DR, Locniskar A, Harmatz JS, Limjuco RA, Shader RI: Effect of age, gender, and obesity on midazolam kinetics. Anesthesiology 61:27-35, 1984.

277. Abernethy DR, Greenblatt DJ: Lidocaine disposition in obesity. American Journal of Cardiology 53:1183-1186, 1984.
278. Ochs HR, Greenblatt DJ, Lüttkenhorst M, Verburg-Ochs B: Single and multiple dose kinetics of clobazam, and clinical effects during multiple dosage. European Journal of Clinical Pharmacology 26:499--503, 1984.
279. Lister RG, File SE, Greenblatt DJ: Functional tolerance to lorazepam in the rat. Psychopharmacology 81:292-294, 1983.
280. Mitler MM, Seidel WF, van den Hoed J, Greenblatt DJ, Dement WC: Comparative hypnotic effects of flurazepam, triazolam, and placebo: a long-term simultaneous nighttime and daytime study. Journal of Clinical Psychopharmacology 4:2-13, 1984.
281. Dimsdale JE, Hartley LH, Guiney T, Ruskin JN, Greenblatt DJ: Postexercise peril: plasma catecholamines and exercise. Journal of the American Medical Association 251:630-632, 1984.
282. Lister RG, Greenblatt DJ, Abernethy DR, File SE: Pharmacokinetic studies on Ro15-1788, a benzodiazepine receptor ligand, in the brain of the rat. Brain Research 290:183-186, 1984.
283. Abernethy DR, Greenblatt DJ, Shader RI: Imipramine disposition in users of oral contraceptive steroids. Clinical Pharmacology and Therapeutics 35:792-797, 1984.
284. Greenblatt DJ, Abernethy DR, Koepke HH, Shader RI: Interaction of cimetidine with oxazepam, lorazepam, and flurazepam. Journal of Clinical Pharmacology 24:187-193, 1984.
285. Arendt RM, Greenblatt DJ: Liquid chromatographic retention of beta adrenoreceptor antagonists: an index of lipid solubility. Journal of Pharmacy and Pharmacology 36:400-401, 1984.
286. Bliwise D, Seidel W, Greenblatt DJ, Dement W: Nighttime and daytime efficacy of flurazepam and oxazepam in chronic insomnia. American Journal of Psychiatry 141:191-195, 1984.
287. Abernethy DR, Greenblatt DJ, Shader RI: Imipramine-cimetidine interaction: impairment of clearance and enhanced absolute bioavailability. Journal of Pharmacology and Experimental Therapeutics 229:702-705, 1984.
288. Dimsdale JE, Hartley LH, Ruskin J, Greenblatt DJ, LaBrie R: Effect of beta blockade on plasma catecholamine levels during psychological and exercise stress. American Journal of Cardiology 54:182-185, 1984.
289. Locniskar A, Greenblatt DJ, Zinny MA, Harmatz JS, Shader RI: Absolute bioavailability and effect of food and antacid on diazepam absorption from a slow release preparation. Journal of Clinical Pharmacology 24:255-263, 1984.
290. Greenblatt DJ, Abernethy DR, Matlis R, Harmatz JS, Shader RI: Absorption and disposition of ibuprofen in the elderly. Arthritis and Rheumatism 27:1066-1069, 1984.
291. Sheehan DV, Coleman JH, Greenblatt DJ, Jones KJ, Levine PH, Orsulak PJ, Peterson M, Schildkraut JJ, Uzogara E, Watkins D: Some biochemical correlates of panic attacks with agoraphobia and their response to a new treatment. Journal of Clinical Psychopharmacology 4:66-75, 1984.

292. Abernethy DR, Greenblatt DJ: Phenytoin disposition in obesity: determination of loading dose. Archives of Neurology 42:468-471, 1985.
293. Greenblatt DJ, Abernethy DR, Morse DS, Shader RI, Harmatz JS: Clinical importance of the interaction of diazepam and cimetidine. New England Journal of Medicine 310:1639-1643, 1984.
294. Matlis R, Greenblatt DJ: Rapid high-performance liquid chromatographic analysis of oxaprozin, a non-steroidal antiinflammatory agent. Journal of Chromatography 310:445-449, 1984.
295. Ochs HR, Rämisch K-D, Verburg-Ochs B, Greenblatt DJ, Gerloff J: Nifedipine: kinetics and dynamics after single oral doses. Klinische Wochenschrift 62:427-429, 1984.
296. Ochs HR, Greenblatt DJ, Verburg-Ochs B, Locniskar A: Comparative single-dose kinetics of oxazolam, prazepam, and clorazepate: three precursors of desmethyldiazepam. Journal of Clinical Pharmacology 24:446-451, 1984.
297. Ochs HR, Greenblatt DJ, Knüchel M: Kinetics of diazepam, midazolam, and lorazepam in cigarette smokers. Chest 87:223-226, 1985.
298. Ochs HR, Greenblatt DJ, Verburg-Ochs B: Propranolol interactions with diazepam, lorazepam, and alprazolam. Clinical Pharmacology and Therapeutics 36:451-455, 1984.
299. Locniskar A, Greenblatt DJ, Ochs HR: Simplified GC assay of underivatized nitrazepam in plasma. Journal of Chromatography 337:131-135, 1985.
300. Ochs HR, Verburg-Ochs B, Höller M, Greenblatt DJ: Effect of ketanserin on the kinetics of digoxin and digitoxin. Journal of Cardiovascular Pharmacology 7:205-207, 1985.
301. Abernethy DR, Greenblatt DJ, Morse DS, Shader RI: Interaction of propoxyphene with diazepam, alprazolam, and lorazepam. British Journal of Clinical Pharmacology 19:51-57, 1985.
302. Arendt RM, Greenblatt DJ, deJong RH, Bonin JD, Abernethy DR: pharmacokinetics, central nervous system uptake, and lipid solubility of propranolol, acebutolol, and sotalol. Cardiology 71:307-314, 1984.
303. Greenblatt DJ, Matlis R, Scavone JM, Blyden GT, Harmatz JS, Shader RI: Oxaprozin pharmacokinetics in the elderly. British Journal of Clinical Pharmacology 19: 373-378, 1985.
304. Abernethy DR, Greenblatt DJ, Shader RI: Imipramine and desipramine disposition in the elderly. Journal of Pharmacology and Experimental Therapeutics 232:183-188, 1985.
305. Greenblatt DJ, Benjamin DM, Willis CR, Harmatz JS, Zinny MA: Lidocaine plasma concentrations following administration of intraoral lidocaine solution. Archives of Otolaryngology 111:248-300, 1985.
306. Miller DD, Hershey LA, Duffy JP, Abernethy DR, Greenblatt DJ: Serum haloperidol concentrations and clinical response in acute psychosis. Journal of Clinical Psychopharmacology 4:305-310, 1984.
307. Ochs HR, Greenblatt DJ, Abernethy DR, Arendt RM, Gerloff J, Eichelkraut W, Hahn N: Cerebrospinal fluid uptake and peripheral

- distribution of centrally acting drugs: relation to lipid solubility. Journal of Pharmacy and Pharmacology 25:204-209, 1985.
308. Ochs HR, Anda L, Eichelbaum M, Greenblatt DJ: Diltiazem, verapamil, and quinidine in patients with chronic atrial fibrillation. Journal of Clinical Pharmacology 25:204-209, 1985.
309. Bellmann O, Ochs HR, Knüchel M, Greenblatt DJ: Evaluation of the hypothalamic-pituitary effects of digoxin. Journal of Clinical Pharmacology 24:474-479, 1984.
310. Ochs HR, Greenblatt DJ, Arendt RM, Schäfer-Korting M, Mutschler E: Single-dose kinetics of oral propranolol, metoprolol, atenolol, and sotalol: relation to lipophilicity. Arzneimittel Forschung 35:1580-1582, 1985.
311. Lister RG, Greenblatt DJ, File SE: A pharmacokinetic study of CGS-8216, a benzodiazepine receptor ligand, in the rat. Psychopharmacology 84:420-422, 1984.
312. Browne TR, Evans JE, Szabo GK, Evans BA, Greenblatt DJ, Schumacher GE: Studies with stable isotopes. I: Changes in phenytoin pharmacokinetics and biotransformation during monotherapy. Journal of Clinical Pharmacology 25:43-50, 1985.
313. Browne TR, Evans JE, Szabo GK, Evans BA, Greenblatt DJ: Studies with stable isotopes. II: Phenobarbital pharmacokinetics during monotherapy. Journal of Clinical Pharmacology 25:51-58, 1985.
314. Browne TR, Greenblatt DJ, Harmatz JS, Evans JE, Szabo GK, Evans BA, Schumacher GE: Studies with stable isotopes. III: Pharmacokinetics of tracer doses of drug. Journal of Clinical Pharmacology 25:59-63, 1985.
315. Pomara N, Stanley B, Block R, Guido J, Russ D, Berchou R, Stanley M, Greenblatt DJ, Newton RE, Gershon S: Adverse effects of single therapeutic doses of diazepam on performance in normal geriatric subjects: relationship to plasma concentrations. Psychopharmacology 84:342-346, 1984.
316. Martyn JAJ, Greenblatt DJ, Abernethy DR: Increased cimetidine clearance in burn patients. Journal of the American Medical Association 253:1288-1291, 1985.
317. Evans JE, Browne TR, Kasdon DL, Szabo GK, Evans BA, Greenblatt DJ: Staggered stable isotope administration technique for study of drug distribution. Journal of Clinical Pharmacology 25:309-312, 1985.
318. Reves JG, Fragen RH, Vinik HR, Greenblatt DJ: Midazolam: pharmacology and uses. Anesthesiology 62:310-324, 1985.
319. Abernethy DR, Greenblatt DJ, Ameer B, Shader RI: Probenecid impairment of acetaminophen and lorazepam clearance: direct inhibition of ether glucuronide formation. Journal of Pharmacology and Experimental Therapeutics 234:345-349, 1985.
320. Friedman H, Ochs HR, Greenblatt DJ, Shader RI: Tissue distribution of diazepam and its metabolite desmethyldiazepam: a human autopsy study. Journal of Clinical Pharmacology 25:613-615, 1985.
321. Dorian P, Sellers EM, Kaplan HL, Hamilton C, Greenblatt DJ, Abernethy D: Triazolam and ethanol interaction: kinetic and dynamic consequences. Clinical Pharmacology and Therapeutics 37:558-562, 1985.

322. Ochs HR, Greenblatt DJ, Verburg-Ochs B: Ibuprofen kinetics in patients with renal insufficiency who are receiving maintenance hemodialysis. Arthritis and Rheumatism 28:1430-1434, 1985.
323. Pomara N, Stanley B, Block R, Berchou RC, Stanley M, Greenblatt DJ, Newton RE, Gershon S: Increased sensitivity of the elderly to the central depressant effects of diazepam. Journal of Clinical Psychiatry 46:185-187, 1985.
324. Friedman H, Greenblatt DJ: The pharmacokinetics of doxylamine: use of automated gas chromatography with nitrogen-phosphorous detection. Journal of Clinical Pharmacology 25:448-451, 1985.
325. Ochs HR, Greenblatt DJ, Verburg-Ochs B, Matlis R: Temazepam clearance unaltered in cirrhosis. American Journal of Gastroenterology 81: 80-84, 1986.
326. Locniskar A, Lasseeter KC, Freeland GR, Chiang ST, Greenblatt DJ: Pharmacokinetics and bioavailability of ciramadol, a new analgesic. Drug Development Research 6:61-66, 1985.
327. Chiueh MCC, Ohata M, Jonas LA, Greenblatt DJ, Rapoport SI: Brain uptake of flurazepam and of N1-desalkyl flurazepam after administration to the cat. Drug Metabolism and Disposition 13:1-4, 1985.
328. Ochs HR, Verburg-Ochs B, Greenblatt DJ: Kinetics of 1,2-dinitroglycerin following sustained release nitroglycerin: influence of propranolol and metoprolol. Klinische Wochenschrift 63:1170-1173, 1985.
329. Abernethy DR, Greenblatt DJ: Ibuprofen disposition in obese individuals. Arthritis and Rheumatism 28:1117-1121, 1985.
330. Greenblatt DJ, Locniskar A, Scavone JM, Blyden GT, Ochs HR, Harmatz JS, Shader RI: Absence of interaction of cimetidine and ranitidine with intravenous and oral midazolam. Anesthesia and Analgesia 65:176-180, 1986.
331. Ochs HR, Greenblatt DJ, Matlis R, Weinbrenner J: Interaction of ibuprofen with the H-2 receptor antagonists ranitidine and cimetidine. Clinical Pharmacology and Therapeutics 38:648-651, 1985.
332. Friedman H, Abernethy DR, Greenblatt DJ, Shader RI: The pharmacokinetics of diazepam and desmethyldiazepam in rat brain and plasma. Psychopharmacology 88:267-270, 1986.
333. Ochs HR, Greenblatt DJ, Verburg-Ochs B: Effect of alprazolam on digoxin kinetics and creatinine clearance. Clinical Pharmacology and Therapeutics 38:595-598, 1985.
334. Adams P, Gelman S, Reves JG, Greenblatt DJ, Alvis JM, Bradley E: Midazolam pharmacodynamics and pharmacokinetics during acute hypovolemia. Anesthesiology 63:140-146, 1985.
335. Lauven PM, Schwilden H, Stoeckel H, Greenblatt DJ: The effects of a benzodiazepine antagonist R015-1788 in the presence of stable concentrations of midazolam. Anesthesiology 63:61-64, 1985.
336. File SE, Greenblatt DJ, Martin IL, Brown C: Long-lasting anticonvulsant effects of diazepam in different mouse strains:

correlations with brain concentrations and receptor occupancy. Psychopharmacology 86:137-141, 1985.

337. Locniskar A, Greenblatt DJ: Determination of ciramadol and dezocine, two new analgesics, by HPLC using electrochemical detection. Journal of Chromatography 374:215-220, 1986.
338. Greenblatt DJ, Abernethy DR, Locniskar A, Ochs HR, Harmatz JS, Shader RI: Age, sex, and nitrazepam kinetics: relation to antipyrine disposition. Clinical Pharmacology and Therapeutics 38:697-703, 1985.
339. Morse DS, Abernethy DR, Greenblatt DJ: Methodologic factors influencing plasma binding of alpha-1-acid glycoprotein-bound and albumin-bound drugs. International Journal of Clinical Pharmacology, Therapy and Toxicology 23:535-539, 1985.
340. Blyden GT, LeDuc BW, Greenblatt DJ: Large theophylline requirements due to high theophylline clearance: verification by the antipyrine test. Pharmacology 32: 226-231, 1986.
341. Scavone JM, Greenblatt DJ, Harmatz JS, Shader RI: Kinetic and dynamic interaction of brotizolam and ethanol. British Journal of Clinical Pharmacology 21:197-204, 1986.
342. Ochs HR, Greenblatt DJ, Knüchel M: Oxaprozin pharmacokinetics in patients with congestive heart failure. Arzneimittel Forschung 36:1837-1840, 1986.
343. Ochs RH, Greenblatt DJ, Knüchel M: Effect of cirrhosis and renal failure on the kinetics of clotiazepam. European Journal of Clinical Pharmacology 30:89-92, 1986.
344. Blyden GT, Franklin C, Cho SI, Kaplan MM, Hirsch CA, Greenblatt DJ: Cyclosporine blood concentrations determined by specific versus nonspecific assay methods. Journal of Clinical Pharmacology 26:367-371, 1986.
345. Locniskar A, Greenblatt DJ, Zinny MA: Pharmacokinetics of dezocine, a new analgesic: effect of dose and route of administration. European Journal of Clinical Pharmacology 30:121-123, 1986.
346. Ciraulo DA, Barnhill JG, Boxenbaum HG, Greenblatt DJ, Smith RB: Pharmacokinetics and clinical effects of alprazolam in patients with panic disorder following single and multiple oral doses. Journal of Clinical Pharmacology 26:292-298, 1986.
347. Scavone JM, Greenblatt DJ, Friedman H, Shader RI: Enhanced bioavailability of triazolam following sublingual versus oral administration. Journal of Clinical Pharmacology 26:208-210, 1986.
348. Shader RI, Dreyfuss D, Gerrein JR, Harmatz JS, Allison SJ, Greenblatt DJ: Sedative effects and impaired learning and recall following single oral doses of lorazepam. Clinical Pharmacology and Therapeutics 39:526-529, 1986.
349. Arana GW, Goff DC, Friedman H, Ornstein M, Greenblatt DJ, Black B, Shader RI: Does carbamazepine-induced reduction of haloperidol plasma levels worsen psychotic symptoms? American Journal of Psychiatry 143:650-651, 1986.
350. Locniskar A, Greenblatt DJ, Harmatz JS, Zinny MA, Shader RI: Interaction of diazepam with famotidine and cimetidine, two H-2



- receptor antagonists. Journal of Clinical Pharmacology 26:299-303, 1986.
351. Blyden GT, Greenblatt DJ, Scavone JM, Shader RI: Pharmacokinetics of diphenhydramine and a demethylated metabolite following intravenous and oral administration. Journal of Clinical Pharmacology 26:529-533, 1986.
352. Greenblatt DJ, Abernethy DR, Boxenbaum HG, Matlis R, Ochs HR, Harmatz JS, Shader RI: Influence of age, gender, and obesity on salicylate kinetics following single doses of aspirin. Arthritis and Rheumatism 29:971-980, 1986.
353. Friedman H, Greenblatt DJ, Burstein ES, Ochs HR: Underivatized measurement of bromazepam by electron-capture gas-liquid chromatography with application to single-dose pharmacokinetics. Journal of Chromatography 378:473-477, 1986.
354. Ochs HR, Hajdu P, Greenblatt DJ: Pharmacokinetics and dynamics of penbutolol in humans: evidence for pathway-specific stereoselective clearance. Klinische Wochenschrift 64:636-641, 1986.
355. Miller LG, LeDuc BW, Greenblatt DJ: Determination of zopiclone in plasma by liquid chromatography with application to steady-state monitoring. Journal of Chromatography 380:211-215, 1986.
356. Ochs HR, Greenblatt DJ, Locniskar A, Weinbrenner J: Influence of propranolol coadministration or cigarette smoking on the kinetics of desmethyldiazepam following intravenous clorazepate. Klinische Wochenschrift 64:1217-1221, 1986.
357. Miller LG, Greenblatt DJ: Determination of atenolol in plasma by liquid chromatography with application to single dose pharmacokinetics. Journal of chromatography 381:201-204, 1986.
358. Miller LG, Greenblatt DJ: Determination of albuterol in human plasma by high-performance liquid chromatography with fluorescence detection. Journal of Chromatography 381:205-208, 1986.
359. Dreyfuss D, Shader RI, Harmatz JS, Greenblatt DJ: Kinetics and dynamics of single doses of oxazepam in the elderly: implications of absorption rate. Journal of Clinical Psychiatry 47:511-514, 1986.
360. Abernethy DR, Greenblatt DJ: Drug disposition in obese humans: an update. Clinical Pharmacokinetics 11:199-213, 1986.
361. Scavone JM, Friedman H, Greenblatt DJ, Shader RI: Effect of age, body composition, and lipid solubility on benzodiazepine tissue distribution in rats. Arzneimittel Forschung 37:2-6, 1987.
362. Blyden GT, Abernethy DR, Greenblatt DJ: Ketoconazole does not impair antipyrine clearance in humans. International Journal of Clinical Pharmacology, Therapy and Toxicology 24:225-226, 1986.
363. Friedman H, Greenblatt DJ: Rational therapeutic drug monitoring. Journal of the American Medical Association 256:2227-2233, 1986.
364. Scavone JM, Greenblatt DJ, Matlis R, Harmatz JS: Interaction of oxaprozin with acetaminophen, cimetidine, and ranitidine. European Journal of Clinical Pharmacology 31:371-374, 1986.

365. Ochs HR, Neugebauer G, Greenblatt DJ, Labedzki L: Influence of beta-blocker coadministration on the kinetics of isosorbide mononitrate and dinitrate. Klinische Wochenschrift 64:1213-1216, 1986.
366. File SE, Dingemanse J, Friedman HL, Greenblatt DJ: Chronic treatment with R015-1788 distinguishes between its benzodiazepine antagonist, agonist and inverse agonist properties. Psychopharmacology 89:113-117, 1986.
367. Hellerstein MK, Greenblatt DJ, Munro HN: Glycoconjugates as noninvasive probes of intrahepatic metabolism: pathways of glucose entry into compartmentalized hepatic UDP-glucose pools during glycogen accumulation. Proceedings of the National Academy of Sciences 83:7044-7048, 1986.
368. Abernethy DR, Greenblatt DJ, Locniskar A, Ochs HR, Harmatz JS, Shader RI: Obesity effects on nitrazepam disposition. British Journal of Clinical Pharmacology 22:551-557, 1986.
369. Miller LG, Friedman H, Greenblatt DJ: Measurement of clonazepam by electron-capture gas-liquid chromatography with application to single-dose pharmacokinetics. Journal of Analytical Toxicology 11:55-57, 1987.
370. Ochs HR, Greenblatt DJ, Höller M, Labedzky L: The interactions of propranolol and ketanserin. Clinical Pharmacology and Therapeutics 41:55-60, 1987.
371. Friedman H, Greenblatt DJ, Burstein ES, Harmatz JS, Shader RI: Population study of triazolam pharmacokinetics. British Journal of Clinical Pharmacology 22:639-642, 1986.
372. Hommer DW, Matsuo V, Wolkowitz O, Chrousos G, Greenblatt DJ, Weingartner H, Paul SM: Benzodiazepine sensitivity in normal human subjects. Archives of General Psychiatry 43:542-551, 1986.
373. Ochs HR, Greenblatt DJ, Labedzki L, Smith RB: Alprazolam kinetics in patients with renal insufficiency. Journal of Clinical Psychopharmacology 6:292-294, 1986.
374. Scavone JM, Greenblatt DJ, Shader RI: Alprazolam kinetics following sublingual and oral administration. Journal of Clinical Psychopharmacology 7:332-334, 1987.
375. Ochs HR, Greenblatt DJ, Friedman H, Burstein ES, Locniskar A, Harmatz JS, Shader RI: Bromazepam pharmacokinetics: influence of age, gender, oral contraceptives, cimetidine, and propranolol. Clinical Pharmacology and Therapeutics 41:562-570, 1987.
376. Miller LG, Greenblatt DJ, Paul SM, Shader RI: Benzodiazepine receptor occupancy in vivo: correlation with brain concentrations and pharmacodynamic actions. Journal of Pharmacology and Experimental Therapeutics 240:516-522, 1987.
377. Harmatz JS, Greenblatt DJ: A SIMPLEX procedure for fitting nonlinear pharmacokinetic models. Computers in Biology and Medicine 17:199-208, 1987.
378. Ochs HR, Miller LG, Greenblatt DJ, Shader RI: Actual versus reported benzodiazepine usage by medical outpatients. European Journal of Clinical Pharmacology 32:383-388, 1987.

379. Ochs HR, Greenblatt DJ, Burstein ES: Lack of influence of cigarette smoking on triazolam pharmacokinetics. British Journal of Clinical Pharmacology 23:759-763, 1987.
380. Greenblatt DJ, Friedman H, Burstein ES, Scavone JM, Blyden GT, Ochs HR, Miller LG, Harmatz JS, Shader RI: Trazodone kinetics: effect of age, gender, and obesity. Clinical Pharmacology and Therapeutics 42:193-200, 1987.
381. Scavone JM, Meneilly GP, Greenblatt DJ, Friedman H: Gas chromatographic analysis of underivatized tocainide. Journal of Chromatography 419:339-344, 1987.
382. Laughren TP, Dias AM, Keene C, Greenblatt DJ: Can chronically anxious patients learn to cope without medications? McLean Hospital Journal 9:72-78, 1987.
383. Miller LG, Thompson ML, Greenblatt DJ, Deutsch SI, Shader RI, Paul SM: Rapid increase in brain benzodiazepine receptor binding following defeat stress in mice. Brain Research 414:395-400, 1987.
384. Arendt RM, Greenblatt DJ, Liebisch DC, Luu MD, Paul SM: Determinants of benzodiazepine brain uptake: lipophilicity versus binding affinity. Psychopharmacology 93:72-76, 1987.
385. McLeod DR, Hoehn-Saric R, Labib AS, Greenblatt DJ: Six weeks of diazepam treatment in normal women: effects on psychomotor performance and psychophysiology. Journal of Clinical Psychopharmacology 8:83-99, 1988.
386. Miller LG, Lee-Paritz A, Greenblatt DJ, Theoharides TC: High-affinity benzodiazepine binding sites on rat peritoneal mast cells and RBL-1 cells: binding characteristics and effects on granule secretion. Pharmacology 36:52-60, 1988.
387. Miller LG, Greenblatt DJ, Barnhill JG, Deutsch SI, Shader RI, Paul SM: Benzodiazepine receptor binding of triazolobenzodiazepines in vivo: increased receptor number with low-dose alprazolam. Journal of Neurochemistry 49:1595-1601, 1987.
388. Browne TR, Greenblatt D, Evans JE, Evans BA, Szabo GK, Schumacher GE: Determination of the in vivo  $K_m$  and  $V_{max}$  of a drug with tracer studies. Journal of Clinical Pharmacology 27:321-324, 1987.
389. Browne TR, Greenblatt DJ, Evans JE, Szabo GK, Evans BA, Schumacher GE: Estimation of the elimination half-life of a drug at any serum concentration when the  $K_m$  and  $V_{max}$  of the drug are known: calculations and validation with phenytoin. Journal of Clinical Pharmacology 27:318-320, 1987.
390. Engelking LR, Blyden GT, Lofstedt J, Greenblatt DJ: Pharmacokinetics of antipyrine, acetaminophen and lidocaine in fed and fasted horses. Journal of Veterinary Pharmacology and Therapeutics 10:73-82, 1987.
391. Engelking LR, Lofstedt J, Blyden GT, Greenblatt DJ: Antipyrine and lidocaine are cleared faster in horses than in humans: acetaminophen may be handled similarly. Pharmacology 34:192-200, 1987.
392. Greenblatt DJ, Harmatz JS, Zinny MA, Shader RI: Effect of gradual withdrawal on the rebound sleep disorder after discontinuation of triazolam. New England Journal of Medicine 317:722-728, 1987.

393. Greenblatt DJ, Divoll MK, Harmatz JS, Shader RI: Antipyrine absorption and disposition in the elderly. Pharmacology 36:125-133, 1988.
394. Kennedy JS, LeDuc BW, Scavone JM, Harmatz JS, Shader RI, Greenblatt DJ: The pharmacokinetics of intravenous caffeine: comparison of high performance liquid chromatographic and gas chromatographic methods. Journal of Chromatography 422:274-280, 1987.
395. Martyn J, Greenblatt DJ: Lorazepam conjugation is unimpaired in burn trauma. Clinical Pharmacology and Therapeutics 43:250-255, 1988.
396. Ochs HR, Greenblatt DJ, Burstein ES, Eichelkraut W, Hahn N: Pharmacokinetics and CSF entry of flurazepam in dogs. Pharmacology 36:166-171, 1988.
397. Rickels K, Fox IL, Greenblatt DJ, Sandler KR, Schless A: Clorazepate and lorazepam: clinical improvement and rebound anxiety. American Journal of Psychiatry 145:312-317, 1988.
398. Ochs HR, Greenblatt DJ, Eichelkraut W, Bakker C, Göbel R, Hahn N: Hepatic vs. gastrointestinal presystemic extraction of oral midazolam and flurazepam. Journal of Pharmacology and Experimental Therapeutics 243:852-856, 1987.
399. Locniskar A, Greenblatt DJ: High-performance liquid chromatographic assay of adinazolam and its desmethyl metabolite. Journal of Chromatography 424:215-217, 1988.
400. Miller LG, Greenblatt DJ, Barnhill JG, Thompson ML, Shader RI: Modulation of benzodiazepine receptor binding in mouse brain by adrenalectomy and steroid replacement. Brain Research 446:314-320, 1988.
401. Miller LG, Greenblatt DJ, Barnhill JG, Shader RI: Differential modulation of benzodiazepine receptor binding by ethanol in LS and SS mice. Pharmacology, Biochemistry, and Behavior 29:471-477, 1988.
402. Miller LG, Greenblatt DJ, Abernethy DR, Friedman H, Luu MD, Paul SM, Shader RI: Kinetics, brain uptake, and receptor binding characteristics of flurazepam and its metabolites. Psychopharmacology 94:386-391, 1988.
403. Hellerstein MK, Greenblatt DJ, Munro HN: Glycoconjugates as noninvasive probes of intrahepatic metabolism: I. Kinetics of label incorporation with evidence of a common precursor UDP-glucose pool for secreted glycoconjugates. Metabolism 36:988-994, 1987.
404. Friedman H, Greenblatt DJ, Burstein ES, Scavone JM, Harmatz JS, Shader RI: Triazolam kinetics: interaction with cimetidine, propranolol, and the combination. Journal of Clinical Pharmacology 28:228-233, 1988.
405. Blyden GT, Scavone JM, Greenblatt DJ: Metronidazole impairs clearance of phenytoin but not of alprazolam or lorazepam. Journal of Clinical Pharmacology 28:240-245, 1988.
406. Browne TR, Szabo GK, Evans JE, Evans BA, Greenblatt DJ, Mikati MA: Carbamazepine increases phenytoin serum concentration and reduces phenytoin clearance. Neurology 38:1146-1150, 1988.
407. Burstein ES, Friedman H, Greenblatt DJ, Locniskar A, Ochs HR: Quantitation of flurazepam and three metabolites by electron-capture gas liquid chromatography. Journal of Analytical Toxicology 12:122-125, 1988.

408. Greenblatt DJ, Engelking LR: Enterohepatic circulation of lorazepam and acetaminophen conjugates in ponies. Journal of Pharmacology and Experimental Therapeutics 294:674-679, 1988.
409. Scavone JM, Greenblatt DJ, Locniskar A, Shader RI: Alprazolam pharmacokinetics in women on low-dose oral contraceptives. Journal of Clinical Pharmacology 28:454-457, 1988.
410. Miller LG, Kastin AJ, Greenblatt DJ: Tyr-MIF-1 augments benzodiazepine receptor binding in vivo. Pharmacology Biochemistry & Behavior 28:521-524, 1987.
411. Scavone JM, Greenblatt DJ, Blyden GT: Antipyrine pharmacokinetics in women receiving conjugated estrogens. Journal of Clinical Pharmacology 28:463-466, 1988.
412. Scavone JM, Greenblatt DJ, Blyden GT, Harmatz JS, Graziano PJ: Simplified approaches to the determination of antipyrine pharmacokinetic parameters. British Journal of Clinical Pharmacology 25:695-699, 1988.
413. Greenblatt DJ, Divoll MK, Soong MH, Boxenbaum HG, Harmatz JS, Shader RI: Desmethyldiazepam pharmacokinetics: studies following intravenous and oral desmethyldiazepam, oral clorazepate, and intravenous diazepam. Journal of Clinical Pharmacology 28:853-859, 1988.
414. Scavone JM, Ochs HR, Greenblatt DJ, Matlis R: Pharmacokinetics of oxaprozin in women receiving conjugated estrogen. European Journal of Clinical Pharmacology 35:105-108, 1988.
415. Ochs HR, Bahrmann H, Greenblatt DJ, Labedzki L: Pharmacodynamic comparison of L-bunolol with propranolol, metoprolol, and placebo. Journal of Clinical Pharmacology 28:1101-1105, 1988.
416. Greenblatt DJ, Harmatz JS, Dorsey C, Shader RI: Comparative single-dose kinetics and dynamics of lorazepam, alprazolam, prazepam, and placebo. Clinical Pharmacology and Therapeutics 44:326-334, 1988.
417. Miller LG, Greenblatt DJ, Barnhill JG, Shader RI: Chronic benzodiazepine administration: I. Tolerance is associated with benzodiazepine receptor downregulation and decreased  $\gamma$ -aminobutyric acid<sub>A</sub> receptor function. Journal of Pharmacology and Experimental Therapeutics 246:170-176, 1988.
418. Miller LG, Greenblatt DJ, Roy RB, Summer WR, Shader RI: Chronic benzodiazepine administration: II. Discontinuation syndrome is associated with upregulation of  $\gamma$ -aminobutyric acid<sub>A</sub> receptor complex binding and function. Journal of Pharmacology and Experimental Therapeutics 246:177-182, 1988.
419. Greenblatt DJ, Harmatz JS, Engelhardt N, Shader RI: Pharmacokinetic determinants of dynamic differences among three benzodiazepine hypnotics: flurazepam, temazepam, and triazolam. Archives of General Psychiatry 46:326-332, 1989.
420. Browne TR, Szabo GK, Evans J, Evans BA, Greenblatt DJ, Mikati MA: Phenobarbital does not alter phenytoin steady-state serum concentration or pharmacokinetics. Neurology 38:639-642, 1988.
421. Miller LG, Greenblatt DJ, Barnhill JG, Summer WR, Shader RI: GABA<sub>A</sub> shift in vivo: enhancement of benzodiazepine binding in vivo by

- modulation of endogenous GABA. European Journal of Pharmacology 148:1123-1130, 1988.
422. Miller LG, Deutsch SI, Greenblatt DJ, Paul SM, Shader RI: Acute barbiturate administration increases benzodiazepine receptor binding in vivo. Psychopharmacology 96:385-390, 1988.
423. Blyden GT, Greenblatt DJ, LeDuc BW, Scavone JM: Effect of antipyrine coadministration on the kinetics of acetaminophen and lidocaine. European Journal of Clinical Pharmacology 35:413-417, 1988.
424. Scavone JM, Blyden GT, Greenblatt DJ: Lack of effect of influenza vaccine on the pharmacokinetics of antipyrine, alprazolam, paracetamol (acetaminophen) and lorazepam. Clinical Pharmacokinetics 16:180-185, 1989.
425. Mikati MA, Szabo GK, Pylilo RJ, LeDuc BW, Browne TR, Greenblatt DJ: Improved high-performance liquid chromatographic assay of antipyrine, hydroxymethylantipyrine, 4-hydroxyantipyrine and norantipyrine in urine. Journal of Chromatography 433:305-311, 1988.
426. Ochs HR, Greenblatt DJ, Verburg-Ochs B, Labedski L: Chronic treatment with fluvoxamine, clovoxamine, and placebo: interaction with digoxin and effects on sleep and alertness. Journal of Clinical Pharmacology 29:91-95, 1989.
427. Lopez F, Miller LG, Greenblatt DJ, Paul SM, Shader RI: Low-dose alprazolam augments motor activity in mice. Pharmacology Biochemistry & Behavior 30:511-513, 1988.
428. Friedman H, Greenblatt DJ, Scavone JM, Burstein ES, Ochs HR, Harmatz JS, Shader RI: Clearance of the antihistamine doxylamine reduced in elderly men but not in elderly women. Clinical Pharmacokinetics 16:312-316, 1989.
429. Luna BG, Scavone JM, Greenblatt DJ: Doxylamine and diphenhydramine pharmacokinetics in women on low-dose estrogen oral contraceptives. Journal of Clinical Pharmacology 29:257-260, 1989.
430. Greenblatt DJ, Ehrenberg BL, Gunderman J, Locniskar A, Scavone JM, Harmatz JS, Shader RI: Pharmacokinetic and electroencephalographic study of intravenous diazepam, midazolam, and placebo. Clinical Pharmacology and Therapeutics 45:356-365, 1989.
431. Ciraulo DA, Barnhill JG, Greenblatt DJ, Shader RI, Ciraulo AM, Tarmey MF, Molloy MA, Foti ME: Abuse liability and clinical pharmacokinetics of alprazolam in alcoholics. Journal of Clinical Psychiatry 49:333-337, 1988.
432. Roy-Byrne PP, Lewis N, Villacres E, Greenblatt DJ, Shader RI, Veith RC: Suppression of norepinephrine appearance rate in plasma by diazepam in humans. Life Sciences 43:1615-1624, 1988.
433. Martyn JAJ, Greenblatt DJ, Hagen J, Hoaglin DC: Alteration by burn injury of the pharmacokinetics and pharmacodynamics of cimetidine in children. European Journal of Clinical Pharmacology 36:361-367, 1989.
434. Kaplan GB, Greenblatt DJ, LeDuc BW, Thompson ML, Shader RI: Relationship of plasma and brain concentrations of caffeine and metabolites to benzodiazepine receptor binding and locomotor activity. Journal of Pharmacology and Experimental Therapeutics 248:1078-1083, 1989.

435. Miller LG, Greenblatt DJ, Roy RB, Gaver A, Lopez F, Shader RI: Chronic benzodiazepine administration: III. Upregulation of  $\gamma$ -aminobutyric acid<sub>A</sub> receptor binding and function associated with chronic benzodiazepine antagonist administration. Journal of Pharmacology and Experimental Therapeutics 248:1096-1101, 1989.
436. Estes NAM, Manolis AS, Greenblatt DJ, Garan H, Ruskin JN: Therapeutic serum lidocaine and metabolite concentrations in patients undergoing electrophysiologic study after discontinuation of intravenous lidocaine infusion. American Heart Journal 117:1060-1064, 1989.
437. Greenblatt DJ, Divoll MK, Abernethy DR, Ochs HR, Harmatz JS, Shader RI: Age and gender effects on chlordiazepoxide kinetics: relation to antipyrine disposition. Pharmacology 38:327-334, 1989.
438. Locniskar A, Greenblatt DJ, Harmatz JS, Shader RI: Bioinequivalence of a generic brand of diazepam. Biopharmaceutics and Drug Disposition 10:597-605, 1989.
439. Burstein ES, Greenblatt DJ: Simplified gas chromatographic analysis of ethanol in blood and tissue. Journal of Chromatography 487:228-231, 1989.
440. LeDuc BW, Greenblatt DJ, Friedman H: Automated high-performance liquid chromatographic analysis of tetracycline in urine. Journal of Chromatography 490:474-477, 1989.
441. Miller LG, Greenblatt DJ, Roy RB, Lopez F, Wecker L. Dietary choline intake modulates benzodiazepine receptor binding and  $\gamma$ -aminobutyric acid<sub>A</sub> receptor function in mouse brain. Journal of Pharmacology and Experimental Therapeutics 248:1-6, 1989.
442. Roy-Byrne PP, Lewis N, Villacres E, Diem H, Greenblatt DJ, Shader RI, Veith R. Preliminary evidence of benzodiazepine subsensitivity in panic disorder. Biological Psychiatry 26:744-748, 1989.
443. Miller LG, Woolverton S, Greenblatt DJ, Lopez F, Roy RB, Shader RI. Chronic benzodiazepine administration: IV. Rapid development of tolerance and receptor downregulation associated with alprazolam administration. Biochemical Pharmacology 38:3773-3777, 1989.
444. Greenblatt DJ, Ehrenberg BL, Gunderman J, Scavone JM, Tai NT, Harmatz JS, Shader RI. Kinetic and dynamic study of intravenous lorazepam: comparison with intravenous diazepam. Journal of Pharmacology and Experimental Therapeutics 250:134-140, 1989.
445. Greenblatt DJ, Harmatz JS, Friedman H, Locniskar A, Shader RI. A large-sample study of diazepam pharmacokinetics. Therapeutic Drug Monitoring 11:652-657, 1989.
446. Schatzki A, Lopez F, Greenblatt DJ, Shader RI, Miller LG. Lorazepam discontinuation promotes "inverse agonist" effects of benzodiazepines. British Journal of Pharmacology 98:451-454, 1989.
447. Friedman H, Greenblatt DJ, LeDuc BW. Impaired absorption of tetracycline by colestipol is not reversed by orange juice. Journal of Clinical Pharmacology 29:748-751, 1989.
448. Scavone JM, Luna BG, Harmatz JS, von Moltke L, Greenblatt DJ. Diphenhydramine kinetics following intravenous, oral, and sublingual dimenhydrinate administration. Biopharmaceutics and Drug Disposition 11:185-189, 1990.

449. Scavone JM, Greenblatt DJ, Fraser DG. The bioavailability of intranasal lignocaine. British Journal of Clinical Pharmacology 28:722-724, 1989.
450. Scavone JM, Greenblatt DJ, Blyden GT, Luna BG, Harmatz JS. Validity of a two-point acetaminophen pharmacokinetic study. Therapeutic Drug Monitoring 12:35-39, 1990.
451. Lopez F, Miller LG, Greenblatt DJ, Chesley S, Schatzki A, Shader RI. Chronic administration of benzodiazepines: V. Rapid onset of behavioral and neurochemical alterations after discontinuation of alprazolam. Neuropharmacology 29:237-241, 1990.
452. Lopez F, Miller LG, Greenblatt DJ, Kaplan GB, Shader RI. Interaction of caffeine with the GABA<sub>A</sub> receptor complex: alterations in receptor function but not ligand binding. European Journal of Pharmacology (Molecular Pharmacology Section) 172:453-459, 1989.
453. Lapierre KA, Greenblatt DJ, Goddard JE, Harmatz JS, Shader RI. The neuropsychiatric effects of aspartame in normal volunteers. Journal of Clinical Pharmacology 30:454-460, 1990.
454. Ciraulo DA, Barnhill JG, Ciraulo AM, Greenblatt DJ, Shader RI. Parental alcoholism as a risk factor in benzodiazepine abuse: a pilot study. American Journal of Psychiatry 146:1333-1335, 1989.
455. Locniskar A, Greenblatt DJ. Oxidative versus conjugative biotransformation of temazepam. Biopharmaceutics and Drug Disposition 11:499-506, 1990.
456. Scavone JM, Greenblatt DJ, LeDuc BW, Blyden GT, Luna BG, Harmatz JS. Differential effect of cigarette smoking on antipyrine oxidation versus acetaminophen conjugation. Pharmacology 40:77-84, 1990.
457. Roy-Byrne PP, Cowley DS, Greenblatt DJ, Shader RI, Hommer D. Reduced benzodiazepine sensitivity in panic disorder. Archives of General Psychiatry 47:534-540, 1990.
458. Rickels K, Schweizer E, Case WG, Greenblatt DJ. Long-term therapeutic use of benzodiazepines I. Effects of abrupt discontinuation. Archives of General Psychiatry 47:899-907, 1990.
459. Schweizer E, Rickels K, Case WG, Greenblatt DJ. Long-term therapeutic use of benzodiazepines II. Effects of gradual taper. Archives of General Psychiatry 47:908-916, 1990.
460. Kaplan GB, Tai NT, Greenblatt DJ, Shader RI. Separate and combined effects of caffeine and alprazolam on motor activity and benzodiazepine receptor binding in vivo. Psychopharmacology 101:539-544, 1990.
461. Ciraulo DA, Antal EJ, Smith RB, Olson DR, Goldberg DA, Rand EH, Raskin RB, Phillips JP, Shader RI, Greenblatt DJ. The relationship of alprazolam dose to steady-state plasma concentrations. Journal of Clinical Psychopharmacology 10:27-32, 1990.
462. Lopez F, Miller LG, Thompson ML, Schatzki A, Chesley S, Greenblatt DJ, Shader RI. Chronic morphine administration augments benzodiazepine binding and GABA<sub>A</sub> receptor function. Psychopharmacology 101:545-549, 1990.



463. Barnhill JG, Greenblatt DJ, Miller LG, Gaver A, Harmatz JS, Shader RI. Kinetic and dynamic components of increased benzodiazepine sensitivity in aging animals. Journal of Pharmacology and Experimental Therapeutics 253:1153-1161, 1990.
464. Kaplan GB, Tai NT, Greenblatt DJ, Shader RI. Caffeine-induced behavioral stimulation is dose- and concentration-dependent. British Journal of Pharmacology 100:435-440, 1990.
465. Miller LG, Galpern WR, Greenblatt DJ, Lumpkin M, Shader RI. Chronic benzodiazepine administration. VI. A partial agonist produces behavioral effects without tolerance or receptor alterations. Journal of Pharmacology and Experimental Therapeutics 254:33-38, 1990.
466. Browne TR, Greenblatt DJ, Szabo GK, Evans JE, Evans BA. New pharmacokinetic methods: I. Estimation of mean serum concentration from trough serum concentration. Journal of Clinical Pharmacology 30:482-488, 1990.
467. Linnoila M, Stapleton JM, Lister R, Moss H, Lane E, Granger A, Greenblatt DJ, Eckardt MJ. Effects of adinazolam and diazepam, alone and in combination with ethanol, on psychomotor and cognitive performance and on autonomic nervous system reactivity in healthy volunteers. European Journal of Clinical Pharmacology 38:371-377, 1990.
468. Labedzki L, Scavone JM, Ochs HR, Greenblatt DJ. Reduced systemic absorption of intrabronchial lidocaine by high-frequency nebulization. Journal of Clinical Pharmacology 30:795-797, 1990.
469. Greenblatt DJ, Sethy VH. Benzodiazepine concentrations in brain directly reflect receptor occupancy: Studies of diazepam, lorazepam, and oxazepam. Psychopharmacology 102:373-378, 1990.
470. Chesley S, Lumpkin M, Schatzki A, Galpern WR, Greenblatt DJ, Shader RI, Miller LG. Prenatal exposure to benzodiazepine. I. Prenatal exposure to lorazepam in mice alters open-field activity and GABA<sub>A</sub> receptor function. Neuropharmacology 30:53-58, 1991.
471. Galpern WR, Miller LG, Greenblatt DJ, Shader RI. Differential effects of chronic lorazepam and alprazolam on benzodiazepine binding and GABA<sub>A</sub> receptor function. British Journal of Pharmacology 101:839-842, 1990.
472. Ochs HR, Greenblatt DJ, Eichelkraut W, LeDuc BW, Powers JF, Hahn N. Contribution of the gastrointestinal tract to lorazepam conjugation and clonazepam nitroreduction. Pharmacology 42:36-48, 1991.
473. Miller LG, Lumpkin M, Greenblatt DJ, Shader RI. Accelerated benzodiazepine receptor recovery following lorazepam discontinuation. FASEB Journal 5:93-97, 1991.
474. Meydani M, Greenblatt DJ. Influence of vitamin E supplementation on antipyrine clearance in the Cebus monkey. Nutrition Research 10:1045-1051, 1990.
475. Greenblatt DJ, Javaid JI, Locniskar A, Harmatz JS, Shader RI. Gas chromatographic analysis of alprazolam in plasma: replicability, stability, and specificity. Journal of Chromatography 534:202-207, 1990.

476. Barnhill JG, Miller LG, Greenblatt DJ, Thompson ML, Ciraulo DA, Shader RI. Benzodiazepine receptor binding response to acute and chronic stress is increased in aging animals. Pharmacology 42:181-187, 1991.
477. Miller LG, Heller J, Lumpkin M, Weill CL, Greenblatt DJ, Shader RI. Augmentation of GABA<sub>A</sub> receptor function by chronic exposure to GABA-neutral and GABA-negative benzodiazepine ligands in cultured cortical neurons. Biochemical Pharmacology 40:1337-1344, 1990.
478. Chesley SF, Schatzki AD, DeUrrutia J, Greenblatt DJ, Shader RI, Miller LG. Cocaine augments peripheral benzodiazepine binding in humans. Journal of Clinical Psychiatry 51:404-406, 1990.
479. Friedman H, Redmond DE, Greenblatt DJ. Comparative pharmacokinetics of alprazolam and lorazepam in humans and in African green monkeys. Psychopharmacology 104:103-105, 1991.
480. Linday LA, Greenblatt DJ, Warren MP, Harmatz JS, DeCresce R, Cicalese C, LeDuc BW. Changes in salivary antipyrine pharmacokinetics during adolescence, correlated with age, hormonal levels and Tanner stage. Developmental Pharmacology and Therapeutics 16:194-202, 1991.
481. Woo E, Proulx SM, Greenblatt DJ. Differential side effect profile of triazolam versus flurazepam in elderly patients undergoing rehabilitation therapy. Journal of Clinical Pharmacology 31:168-173, 1991.
482. Kennedy JS, von Moltke LL, Harmatz JS, Engelhardt N, Greenblatt DJ. Validity of self-reports of caffeine use. Journal of Clinical Pharmacology 31:677-680, 1991.
483. Schuckit MA, Greenblatt DJ, Gold E, Irwin M. Reactions to ethanol and diazepam in healthy young men. Journal of Studies on Alcohol 52:180-187, 1991.
484. Goff DC, Arana GW, Greenblatt DJ, Dupont R, Ornstein M, Harmatz JS, Shader RI. The effect of benztropine on haloperidol-induced dystonia, clinical efficacy and pharmacokinetics: A prospective, double-blind trial. Journal of Clinical Psychopharmacology 11:106-112, 1991.
485. Miller LG, Lumpkin M, Galpern WR, Greenblatt DJ, Shader RI. Modification of  $\gamma$ -aminobutyric acid<sub>A</sub> receptor binding and function by N-ethoxycarbonyl-2-ethoxy-1,2-dihydroquinoline in vitro and in vivo: effects of aging. Journal of Neurochemistry 56:1241-1247, 1991.
486. Greenblatt DJ, Harmatz JS, Shapiro L, Engelhardt N, Gouthro TA, Shader RI. Sensitivity to triazolam in the elderly. New England Journal of Medicine 324:1691-1698, 1991.
487. Schweizer E, Rickels K, Case WG, Greenblatt DJ. Carbamazepine treatment in patients discontinuing long-term benzodiazepine therapy. Archives of General Psychiatry 48:448-452, 1991.
488. Kaplan GB, Greenblatt DJ, Kent MA, Cotreau MM, Arcelin G, Shader RI. Caffeine-induced behavioral stimulation is dose-dependent and associated with A<sub>1</sub> adenosine receptor occupancy. Neuropsychopharmacology 6:145-153, 1992.

489. Galpern WR, Lumpkin M, Greenblatt DJ, Shader RI, Miller LG. Chronic benzodiazepine administration. VII. Behavioral tolerance and withdrawal and receptor alterations associated with clonazepam administration. Psychopharmacology 104:225-230, 1991.
490. Roy-Byrne PP, Cowley DS, Hommer D, Ritchie J, Greenblatt D, Nemeroff C. Neuroendocrine effects of diazepam in panic and generalized anxiety disorders. Biological Psychiatry 30:73-80, 1991
491. Greenblatt DJ, Harmatz JS, Shader RI. Clinical pharmacokinetics of anxiolytics and hypnotics in the elderly: therapeutic considerations. Clinical Pharmacokinetics 21:165-177, 262-273, 1991.
492. Barnhill JG, Ciraulo DA, Greenblatt DJ, Faggart MA, Harmatz JS. Benzodiazepine response and receptor binding after chronic ethanol ingestion in a mouse model. Journal of Pharmacology and Experimental Therapeutics 258:812-819, 1991.
493. Scavone JM, Greenblatt DJ, Goddard JE, Friedman H, Harmatz JS, Shader RI. The pharmacokinetics and pharmacodynamics of sublingual and oral alprazolam in the post-prandial state. European Journal of Clinical Pharmacology 42:439-443, 1992.
494. Galpern WR, Miller LG, Greenblatt DJ, Szabo GK, Browne TR, Shader RI. Chronic benzodiazepine administration. IX. Attenuation of alprazolam discontinuation effects by carbamazepine. Biochemical Pharmacology 42:s99-s104, 1991.
495. Miller LG, Chesley S, Galpern WR, Greenblatt DJ, Shader RI. Prenatal benzodiazepine administration. II. Lorazepam exposure is associated with decreases in [<sup>35</sup>S]TBPS binding but not benzodiazepine binding. Pharmacology Biochemistry & Behavior 40:429-432, 1991.
496. Osman OT, DeVane CL, Greenblatt DJ, Potter WZ. Pharmacokinetic and dynamic correlates of intravenous alprazolam challenge. Clinical Pharmacology and Therapeutics 50:656-662, 1991.
497. von Moltke LL, Abernethy DR, Kaplan MM, Greenblatt DJ. Antipyrine kinetics in patients with primary biliary cirrhosis. Journal of Clinical Pharmacology 33:70-74, 1993.
498. Kaplan GB, Cotreau MM, Greenblatt DJ. Effects of benzodiazepine administration on A<sub>1</sub> adenosine receptor binding in-vivo and ex-vivo. Journal of Pharmacy and Pharmacology 44:700-703, 1992.
499. Miller LG, Galpern WR, Greenblatt, DJ. Benzodiazepine receptor binding of benzodiazepine hypnotics: receptor and ligand specificity. Pharmacology, Biochemistry, and Behavior 43:413-416, 1992.
500. Friedman H, Greenblatt DJ, Peters GR, Metzler CM, Charlton MD, Harmatz JS, Antal EJ, Sanborn EC, Francom SF. Pharmacokinetics and pharmacodynamics of oral diazepam: effect of dose, plasma concentration, and time. Clinical Pharmacology and Therapeutics 52:139-150, 1992.
501. Lopez F, Miller LG, Greenblatt DJ, Schatzki A, Lumpkin M, Shader RI. Chronic low-dose alprazolam augments  $\gamma$ -aminobutyric acid<sub>A</sub> receptor function. Journal of Clinical Psychopharmacology 12:119-123, 1992.
502. Ochs HR, Oberem U, Greenblatt DJ. Nitrazepam clearance unimpaired in patients with renal insufficiency. Journal of Clinical Psychopharmacology 12:183-185, 1992.

503. Byrnes JJ, Greenblatt DJ, Miller LG. Benzodiazepine receptor binding of non-benzodiazepines in vivo: alpidem, zolpidem, and zopiclone. Brain Research Bulletin 29:905-908, 1992.
504. Miller LG, Galpern WR, Byrnes JJ, Greenblatt DJ, Shader RI. Chronic benzodiazepine administration. X. Concurrent administration of the peripheral-type benzodiazepine ligand PK11195 attenuates chronic effects of lorazepam. Journal of Pharmacology and Experimental Therapeutics 261:285-289, 1992.
505. Greenblatt DJ, Preskorn SH, Cotreau MM, Horst WD, Harmatz JS. Fluoxetine impairs clearance of alprazolam but not of clonazepam. Clinical Pharmacology and Therapeutics 52:479-486, 1992.
506. LeDuc BW, Sinclair PR, Shuster L, Sinclair JF, Evans JE, Greenblatt DJ. Norcocaine and N-hydroxynorcocaine formation in human liver microsomes: role of cytochrome P-450 3A4. Pharmacology 46:294-300, 1993.
507. von Moltke LL, Greenblatt DJ, Shader RI. Clinical pharmacokinetics of antidepressants in the elderly: therapeutic implications. Clinical Pharmacokinetics 24:141-160, 1993.
508. von Moltke LL, Manis M, Harmatz JS, Poorman R, Greenblatt DJ. Inhibition of acetaminophen and lorazepam glucuronidation in vitro by probenecid. Biopharmaceutics and Drug Disposition 14:119-130, 1993.
509. Greenblatt DJ, Harmatz JS, Shader RI. Plasma alprazolam concentrations: relation to efficacy and side effects in the treatment of panic disorder. Archives of General Psychiatry 50:715-722, 1993.
510. Miller LG, Thompson ML, Byrnes JJ, Greenblatt DJ, Shemer A. Kinetics, brain uptake, and receptor binding of tandospirone and its metabolite, 1-(2-pyrimidinyl)-piperazine. Journal of Clinical Psychopharmacology 12:341-345, 1992.
511. Shader RI, Greenblatt DJ. Use of benzodiazepines in anxiety disorders. New England Journal of Medicine 328:1398-1405, 1993.
512. Browne TR, Szabo GK, Schumacher GE, Greenblatt DJ, Evans JE, Evans BA. Bioavailability studies of drugs with nonlinear pharmacokinetics: I. tracer dose AUC varies directly with serum concentration. Journal of Clinical Pharmacology 32:1141-1145, 1992.
513. Greenblatt DJ, Scavone JM, Harmatz JS, Engelhardt N, Shader RI. Cognitive effects of  $\beta$ -adrenergic antagonists after single doses: pharmacokinetics and pharmacodynamics of propranolol, atenolol, lorazepam, and placebo. Clinical Pharmacology and Therapeutics 53:577-584, 1993.
514. Court MH, Greenblatt DJ. Pharmacokinetics and preliminary observations of behavioral changes following administration of midazolam to dogs. Journal of Veterinary Pharmacology and Therapeutics 15:343-350, 1992.
515. von Moltke LL, Greenblatt DJ, Harmatz JS, Shader RI. Alprazolam metabolism in vitro: studies of human, monkey, mouse, and rat liver microsomes. Pharmacology 47:268-276, 1993.

516. Cowley DS, Roy-Byrne PP, Godon C, Greenblatt DJ, Ries R, Walker RD, Samson HH, Hommer DW. Response to diazepam in sons of alcoholics. Alcoholism: Clinical and Experimental Research 16:1057-1063, 1992.
517. Court MH, Dodman NH, Greenblatt DJ, Agarwal RK, Kumar MSA. Effect of midazolam infusion and flumazenil administration on epinephrine arrhythmogenicity in dogs anesthetized with halothane. Anesthesiology 78:155-162, 1993.
518. Greenblatt DJ, Wright CE. Clinical pharmacokinetics of alprazolam: therapeutic implications. Clinical Pharmacokinetics 24:453-471, 1993.
519. Byrnes JJ, Miller LG, Perkins K, Greenblatt DJ, Shader RI. Chronic benzodiazepine administration XI. Concurrent administration of PK11195 attenuates lorazepam discontinuation effects. Neuropsychopharmacology 8:267-273, 1993.
520. Kaplan GB, Greenblatt DJ, Kent MA, Cotreau-Bibbo MM. Caffeine treatment and withdrawal in mice: relationships between dosage, concentrations, locomotor activity and A<sub>1</sub> adenosine receptor binding. Journal of Pharmacology and Experimental Therapeutics 266:1563-1572, 1993.
521. Cowley DS, Roy-Byrne PP, Greenblatt DJ, Hommer DW. Personality and benzodiazepine sensitivity in anxious patients and control subjects. Psychiatry Research 47:151-162, 1993.
522. Roy-Byrne PP, Cowley DS, Radant A, Hommer D, Greenblatt DJ. Benzodiazepine pharmacodynamics: utility of eye movement measures. Psychopharmacology 110:85-91, 1993.
523. LeDuc BW, Sinclair PR, Walton HS, Sinclair JF, Greenblatt DJ, Shuster L. Cocaine toxicity in cultured chicken hepatocytes: role of cytochrome P-450. Toxicology and Applied Pharmacology 125:322-332, 1994.
524. von Moltke LL, Greenblatt DJ, Cotreau-Bibbo MM, Duan SX, Harmatz JS, Shader RI. Inhibition of desipramine hydroxylation *in vitro* by serotonin-reuptake-inhibitor antidepressants, and by quinidine and ketoconazole: a model system to predict drug interactions *in vivo*. Journal of Pharmacology and Experimental Therapeutics 268:1278-1283, 1994.
525. Greenblatt DJ, Harmatz JS, Gouthro TA, Locke J, Shader RI. Distinguishing a benzodiazepine agonist (triazolam) from a non-agonist anxiolytic (buspirone) by electroencephalography: kinetic-dynamic studies. Clinical Pharmacology and Therapeutics 56:100-111, 1994.
526. von Moltke LL, Greenblatt DJ, Cotreau-Bibbo MM, Harmatz JS, Shader RI. Inhibitors of alprazolam metabolism *in vitro*: effect of serotonin-reuptake-inhibitor antidepressants, ketoconazole and quinidine. British Journal of Clinical Pharmacology 38:23-31, 1994.
527. von Moltke LL, Greenblatt DJ, Duan SX, Harmatz JS, Shader RI. *In vitro* prediction of the terfenadine-ketoconazole pharmacokinetic interaction. Journal of Clinical Pharmacology 34:1222-1227, 1994.
528. Schweizer E, Case WG, Garcia-Espana F, Greenblatt DJ, Rickels K. Progesterone co-administration in patients discontinuing long-term benzodiazepine therapy: effects on withdrawal severity and taper outcome. Psychopharmacology 117:424-429, 1995.

529. Cowley DS, Roy-Byrne PP, Radant A, Ritchie JC, Greenblatt DJ, Nemeroff CB, Hommer DW. Benzodiazepine sensitivity in panic disorder: effects of chronic alprazolam treatment. Neuropsychopharmacology 12:147-157, 1995.
530. Hopfenbeck JR, Cowley DS, Radant A, Greenblatt DJ, Roy-Byrne PP. Effects of diphenhydramine on human eye movements. Psychopharmacology 118:280-286, 1995.
531. von Moltke LL, Greenblatt DJ, Court MH, Duan SX, Harmatz JS, Shader RI. Inhibition of alprazolam and desipramine hydroxylation *in vitro* by paroxetine and fluvoxamine: comparison with other selective serotonin reuptake inhibitor antidepressants. Journal of Clinical Psychopharmacology 15:125-131, 1995.
532. Cowley DS, Roy-Byrne PP, Radant A, Hommer DW, Greenblatt DJ, Vitaliano PP, Godon C. Eye movement effects of diazepam in sons of alcoholic fathers and male control subjects. Alcoholism: Clinical and Experimental Research 18:324-332, 1994.
533. Matthew E, Andreason P, Pettigrew K, Carson RE, Herscovitch P, Cohen R, King C, Johanson CE, Greenblatt DJ, Paul SM. Benzodiazepine receptors mediate regional blood flow changes in the living human brain. Proceedings of the National Academy of Sciences 92:2775-2779, 1995.
534. Schmider J, Greenblatt DJ, von Moltke LL, Harmatz JS, Shader RI. N-demethylation of amitriptyline *in vitro*: role of Cytochrome P-450 3A (CYP3A) isoforms and effect of metabolic inhibitors. Journal of Pharmacology and Experimental Therapeutics 275:592-597, 1995.
535. von Moltke LL, Greenblatt DJ, Duan SX, Harmatz JS, Shader RI. Inhibition of terfenadine metabolism *in vitro* by azole antifungal agents and by selective serotonin-reuptake inhibitor antidepressants: relation to pharmacokinetic interactions *in vivo*. Journal of Clinical Psychopharmacology 16:104-112, 1996.
536. von Moltke LL, Greenblatt DJ, Harmatz JS, Duan SX, Harrel LM, Cotreau-Bibbo MM, Pritchard GA, Wright CE, Shader RI. Triazolam biotransformation by human liver microsomes *in vitro*: effects of metabolic inhibitors, and clinical confirmation of a predicted interaction with ketoconazole. Journal of Pharmacology and Experimental Therapeutics 276:370-379, 1996.
537. Schmider J, Greenblatt DJ, von Moltke LL, Harmatz JS, Duan SX, Karsov D, Shader RI. Characterization of six *in vitro* reactions mediated by human cytochrome P450: application to the testing of cytochrome P450-directed antibodies. Pharmacology 52:125-134, 1996.
538. Court MH, von Moltke LL, Shader RI, Greenblatt DJ. Biotransformation of chlorzoxazone by hepatic microsomes from humans and ten other mammalian species. Biopharmaceutics and Drug Disposition 18:213-226, 1997.
539. Cowley DS, Roy-Byrne PP, Greenblatt DJ, Kramer GL, Petty F. Effect of diazepam on plasma GABA in sons of alcoholic fathers. Alcoholism: Clinical and Experimental Research 20:343-347, 1996.
540. Schmider J, Greenblatt DJ, von Moltke LL, Harmatz JS, Shader RI. Inhibition of cytochrome P450 by nefazodone *in vitro*: studies of dextromethorphan O- and N-demethylation. British Journal of Clinical Pharmacology 41:339-343, 1996.

541. Schmider J, Greenblatt DJ, Harmatz JS, Shader RI. Enzyme kinetic modelling as a tool to analyse the behaviour of cytochrome P450 catalysed reactions: application to amitriptyline N-demethylation. British Journal of Clinical Pharmacology 41:593-604, 1996.
542. Charpentier KP, von Moltke LL, Poku JW, Harmatz JS, Shader RI, Greenblatt DJ. Alprazolam hydroxylation by mouse liver microsomes *in vitro*: effect of age and phenobarbital induction. Biopharmaceutics and Drug Disposition 18:139-149, 1997.
543. von Moltke LL, Greenblatt DJ, Schmider J, Harmatz JS, Shader RI. Metabolism of drugs by Cytochrome P450-3A isoforms: implications for drug interactions in psychopharmacology. Clinical Pharmacokinetics 29(suppl. 1):33-43, 1995.
544. Schmider J, Greenblatt DJ, von Moltke LL, Karsov D, Vena R, Friedman HL, Shader RI. Biotransformation of mestranol to ethinyl estradiol *in vitro*: the role of cytochrome P-450 2C9 and metabolic inhibitors. Journal of Clinical Pharmacology 37:193-200, 1997.
545. von Moltke LL, Greenblatt DJ, Duan SX, Schmider J, Kudchadker L, Fogelman SM, Harmatz JS, Shader RI. Phenacetin O-deethylation by human liver microsomes *in vitro*: inhibition by chemical probes, SSRI antidepressants, nefazodone, and venlafaxine. Psychopharmacology 128:398-407, 1996.
546. Court MH, Greenblatt DJ. Molecular basis for deficient acetaminophen glucuronidation in cats. Biochemical Pharmacology 53:1041-1047, 1997.
547. Schmider J, Greenblatt DJ, Fogelman SM, von Moltke LL, Shader RI. Metabolism of dextromethorphan *in vitro*: involvement of cytochromes P450 2D6 and 3A3/4, with a possible role of 2E1. Biopharmaceutics and Drug Disposition 18:227-240, 1997.
548. Laurijssens BE, Greenblatt DJ. Pharmacokinetic-pharmacodynamic relationships for benzodiazepines. Clinical Pharmacokinetics 30:52-76, 1996.
549. von Moltke LL, Greenblatt DJ, Schmider J, Duan SX, Wright CE, Harmatz JS, Shader RI. Midazolam hydroxylation by human liver microsomes *in vitro*: inhibition by fluoxetine, norfluoxetine, and by azole antifungal agents. Journal of Clinical Pharmacology 36:783-791, 1996.
550. Pourmotabbed T, McLeod DR, Hoehn-Saric R, Hipsley P, Greenblatt DJ. Treatment, discontinuation, and psychomotor effects of diazepam in women with generalized anxiety disorder. Journal of Clinical Psychopharmacology 16:202-207, 1996.
551. Cotreau-Bibbo MM, von Moltke LL, Greenblatt DJ. The influence of polyethylene glycol and acetone on the *in vitro* biotransformation of tamoxifen and alprazolam by human liver microsomes. Journal of Pharmaceutical Sciences 85:1180-1185, 1996.
552. von Moltke LL, Duan SX, Greenblatt DJ, Fogelman SM, Schmider J, Harmatz JS, Shader RI. Venlafaxine and metabolites are very weak inhibitors of human cytochrome P450-3A isoforms. Biological Psychiatry 41:377-390, 1997.
553. Roy-Byrne P, Wingerson DK, Radant A, Greenblatt DJ, Cowley DS. Reduced benzodiazepine sensitivity in patients with panic disorder: comparison with patients with obsessive-compulsive disorder and normal subjects. American Journal of Psychiatry 153:1444-1449, 1996.

554. Ciraulo DA, Sarid-Segal O, Knapp C, Ciraulo AM, Greenblatt DJ, Shader RI. Liability to alprazolam abuse in daughters of alcoholics. American Journal of Psychiatry 153:956-958, 1996.
555. Court MH, Greenblatt DJ. Biochemical basis for deficient paracetamol glucuronidation in cats: an interspecies comparison of enzyme constraint in liver microsomes. Journal of Pharmacy and Pharmacology 49:446-449, 1997.
556. Scavone JM, Greenblatt DJ, Abernethy DR, Luna BG, Harmatz JS, Shader RI. Influence of oral contraceptive use and cigarette smoking, alone and together, on antipyrine pharmacokinetics. Journal of Clinical Pharmacology 37:437-441, 1997.
557. Durol ALB, Greenblatt DJ. Analysis of zolpidem in human plasma by high-performance liquid chromatography with fluorescence detection: application to single-dose pharmacokinetic studies. Journal of Analytical Toxicology 21:388-392, 1997.
558. von Moltke LL, Greenblatt DJ, Schmider J, Wright CE, Harmatz JS, Shader RI. *In vitro* approaches to predicting drug interactions *in vivo*. Biochemical Pharmacology 55:113-122, 1998.
559. von Moltke LL, Greenblatt DJ, Duan SX, Schmider J, Wright CE, Harmatz JS, Shader RI. Human cytochromes mediating N-demethylation of fluoxetine *in vitro*. Psychopharmacology 132:402-407, 1997.
560. Kaplan GB, Greenblatt DJ, Ehrenberg BL, Goddard JE, Cotreau-Bibbo MM, Harmatz JS, Shader RI. Dose-dependent pharmacokinetics and psychomotor effects of caffeine in humans. Journal of Clinical Pharmacology 37:693-703, 1997.
561. Alderman J, Preskorn SH, Greenblatt DJ, Harrison W, Penenberg D, Allison J, Chung M. Desipramine pharmacokinetics when coadministered with paroxetine or sertraline in extensive metabolizers. Journal of Clinical Psychopharmacology 17:284-291, 1997.
562. Goudas LC, Carr DB, Maszczynska I, Marchand JE, Wurm WH, Greenblatt DJ, Kream RM. Differential effect of central versus parenteral administration of morphine sulfate on regional concentrations of reduced glutathione in rat brain. Pharmacology 54:92-97, 1997.
563. Schmider J, Greenblatt DJ, von Moltke LL, Karsov D, Shader RI. Inhibition of CYP2C9 by selective serotonin reuptake inhibitors *in vitro*: studies of phenytoin para-hydroxylation. British Journal of Clinical Pharmacology 44:495-498, 1997.
564. Koff JM, Pritchard GA, Greenblatt DJ, Miller LG. The NMDA receptor competitive antagonist CPP modulates benzodiazepine tolerance and discontinuation. Pharmacology 55:217-227, 1997.
565. Norman WM, Court MH, Greenblatt DJ. Age-related changes in the pharmacokinetic disposition of diazepam in foals. American Journal of Veterinary Research 58:878-880, 1997.
566. Kaplan GB, Greenblatt DJ, Ehrenberg BL, Goddard JE, Harmatz JS, Shader RI. Single dose pharmacokinetics and pharmacodynamics of alprazolam in elderly and young subjects. Journal of Clinical Pharmacology 38:14-21, 1998.
567. Venkatakrishnan K, Greenblatt DJ, von Moltke LL, Schmider J, Harmatz JS, Shader RI. Five distinct human cytochromes mediate amitriptyline



- N-demethylation *in vitro*: dominance of CYP 2C19 and 3A4. Journal of Clinical Pharmacology 38:112-121, 1998.
568. Roth TG, Roehrs TA, Koshorek GL, Greenblatt DJ, Rosenthal LD. Hypnotic effects of low doses of quazepam in older insomniacs. Journal of Clinical Psychopharmacology 17:401-406, 1997.
569. Venkatakrishnan K, von Moltke LL, Duan SX, Fleishaker JC, Shader RI, Greenblatt DJ. Kinetic characterization and identification of the enzymes responsible for the hepatic biotransformation of adinazolam and N-desmethylnadinazolam. Journal of Pharmacy and Pharmacology 50:265-274, 1998.
570. Bauer LO, Gross JB, Meyer RE, Greenblatt DJ. Chronic alcohol abuse and the acute sedative and neurophysiologic effects of midazolam. Psychopharmacology 133:293-299, 1997.
571. Greenblatt DJ, Wright CE, von Moltke LL, Harmatz JS, Ehrenberg BL, Harrel LM, Corbett K, Counihan M, Tobias S, Shader RI. Ketoconazole inhibition of triazolam and alprazolam clearance: differential kinetic and dynamic consequences. Clinical Pharmacology and Therapeutics 64:237-247, 1998.
572. Fahey JM, Pritchard GA, von Moltke LL, Pratt JS, Grassi JM, Shader RI, Greenblatt DJ. The effects of ketoconazole on triazolam pharmacokinetics, pharmacodynamics and benzodiazepine receptor binding in mice. Journal of Pharmacology and Experimental Therapeutics 285:271-276, 1998.
573. von Moltke LL, Greenblatt DJ, Grassi JM, Granda BW, Duan SX, Fogelman SM, Daily JP, Harmatz JS, Shader RI. Protease inhibitors as inhibitors of human cytochromes P450: high risk associated with ritonavir. Journal of Clinical Pharmacology 38:106-111, 1998.
574. von Moltke LL, Greenblatt DJ, Ciraulo DA, Grassi JM, Granda BW, Duan SX, Harmatz JS, Shader RI. Appetite suppressant drugs as inhibitors of human cytochromes P450: *in vitro* inhibition of P450-2D6 by D- and L-fenfluramine, but not phentermine. Journal of Clinical Psychopharmacology 18:338-341, 1998.
575. von Moltke LL, Greenblatt DJ, Grassi JM, Granda BW, Fogelman SM, Harmatz JS, Kramer SJ, Fabre LF, Shader RI. Gepirone and 1-(2-pyrimidinyl)-piperazine *in vitro*: human cytochromes mediating transformation and cytochrome inhibitory effects. Psychopharmacology 140:293-299, 1998.
576. von Moltke LL, Greenblatt DJ, Grassi JM, Granda BW, Venkatakrishnan K, Schmider J, Harmatz JS, Shader RI. Multiple human cytochromes contribute to biotransformation of dextromethorphan *in vitro*: role of CYP-2C9, -2C19, -2D6, and -3A. Journal of Pharmacy and Pharmacology 50:997-1004, 1998.
577. Kotegawa T, Laurijssens BE, Greenblatt DJ. Use of one cannula for both blood sampling and drug administration: a potential cause of overestimation of drug concentration. Pharmacy and Pharmacology Communications 4:283-285, 1998.
578. Venkatakrishnan K, von Moltke LL, Greenblatt DJ. Relative quantities of catalytically active CYP 2C9 and 2C19 in human liver microsomes: application of the relative activity factor approach. Journal of Pharmaceutical Science 87:845-853, 1998.

579. Scavone JM, Greenblatt DJ, Harmatz JS, Engelhardt N, Shader RI. Pharmacokinetics and pharmacodynamics of diphenhydramine 25 mg in young and elderly volunteers. Journal of Clinical Pharmacology 38:603-609, 1998.
580. Rickels K, Schweizer D, Case WG, DeMartinis N, Greenblatt DJ, Mandos LA, Espaça FG. Nefazodone in major depression: adjunctive benzodiazepine therapy and tolerability. Journal of Clinical Psychopharmacology 18:145-153, 1998.
581. Greenblatt DJ, von Moltke LL, Harmatz JS, Counihan M, Graf JA, Durol ALB, Mertzanis P, Duan SX, Wright CE, Shader RI. Inhibition of triazolam clearance by macrolide antimicrobial agents: *in vitro* correlates and dynamic consequences. Clinical Pharmacology and Therapeutics 64:278-285, 1998.
582. Fahey JM, Pritchard GA, Pratt JS, Shader RI, Greenblatt DJ. Lorazepam attenuates the behavioral effects of dizocilpine. Pharmacology Biochemistry and Behavior 62:103-110, 1999.
583. von Moltke LL, Greenblatt DJ, Duan SX, Daily JP, Harmatz JS, Shader RI. Inhibition of desipramine hydroxylation (Cytochrome P450-2D6) *in vitro* by quinidine and by viral protease inhibitors: relation to drug interactions *in vivo*. Journal of Pharmaceutical Sciences 87:1184-1189, 1998.
584. von Moltke LL, Greenblatt DJ, Duan SX, Harmatz JS, Shader RI. Inhibition of triazolam hydroxylation by ketoconazole, itraconazole, hydroxyitraconazole and fluconazole *in vitro*. Pharmacy and Pharmacology Communications 4:443-445, 1998.
585. Greenblatt DJ, Harmatz JS, von Moltke LL, Ehrenberg BL, Harrel L, Corbett K, Counihan M, Graf JA, Darwish M, Mertzanis P, Martin PT, Cevallos WH, Shader RI. Comparative kinetics and dynamics of zaleplon, zolpidem, and placebo. Clinical Pharmacology and Therapeutics 64:553-561, 1998.
586. Pomara N, Tun H, DaSilva D, Hernando R, Deptula D, Greenblatt DJ. The acute and chronic performance effects of alprazolam and lorazepam in the elderly: relationship to duration of treatment and self-rated sedation. Psychopharmacology Bulletin 34:139-153, 1998.
587. Venkatakrishnan K, von Moltke LL, Greenblatt DJ. Human cytochromes P450 mediating phenacetin O-deethylation *in vitro*: validation of the high affinity component as an index of CYP1A2 activity. Journal of Pharmaceutical Sciences 87:1502-1507, 1998.
588. Greenblatt DJ, von Moltke LL, Harmatz JS, Mertzanis P, Graf JA, Durol ALB, Counihan M, Roth-Schechter B, Shader RI. Kinetic and dynamic interaction study of zolpidem with ketoconazole, itraconazole, and fluconazole. Clinical Pharmacology and Therapeutics 64:661-671, 1998.
589. Fogelman SM, Schmider J, Venkatakrishnan K, von Moltke LL, Harmatz JS, Shader RI, Greenblatt DJ. O- and N-demethylation of venlafaxine *in vitro* by human liver microsomes and by microsomes from cDNA-transfected cells: effect of metabolic inhibitors and SSRI antidepressants. Neuropsychopharmacology 20:480-490, 1999.
590. von Moltke LL, Greenblatt DJ, Grassi JM, Granda BW, Venkatakrishnan K, Duan SX, Fogelman SM, Harmatz JS, Shader RI. Citalopram and desmethylcitalopram *in vitro*: human cytochromes mediating transformation, and cytochrome inhibitory effects. Biological Psychiatry 46:839-849, 1999.

591. Fahey JM, Pritchard GA, Grassi JM, Pratt JS, Shader RI, Greenblatt DJ. In situ hybridization histochemistry as a method to assess GABA<sub>A</sub> receptor subunit mRNA expression following chronic alprazolam administration. Journal of Psychopharmacology 13:211-218, 1999.
592. Venkatakrishnan K, von Moltke LL, Greenblatt DJ. Nortriptyline E-10-hydroxylation *in vitro* is mediated by human CYP2D6 (high-affinity) and CYP3A4 (low-affinity): implications for interactions with enzyme-inducing drugs. Journal of Clinical Pharmacology 39:567-577, 1999.
593. von Moltke LL, Greenblatt DJ, Granda BW, Duan SX, Grassi JM, Venkatakrishnan K, Harmatz JS, Shader RI. Zolpidem metabolism *in vitro*: responsible cytochromes, chemical inhibitors, and *in vivo* correlations. British Journal of Clinical Pharmacology 48:89-97, 1999.
594. Perloff MD, von Moltke LL, Cotreau MM and Greenblatt DJ. Unchanged CYP 3A expression and metabolism of midazolam, triazolam, and dexamethasone in mdr(-/-) mouse liver microsomes. Biochemical Pharmacology 57:1227-1232, 1999.
595. Rickels K, Schweizer E, Garcia Espana F, Case G, DeMartinis N and Greenblatt D. Trazodone and valproate in patients discontinuing long-term benzodiazepine therapy: effects on withdrawal symptoms and taper outcome. Psychopharmacology (Berl) 141:1-5, 1999.
596. von Moltke LL, Greenblatt DJ, Granda BW, Grassi JM, Schmider J, Harmatz JS and Shader RI. Nefazodone, meta-chlorophenylpiperazine and their metabolites *in vitro*: cytochromes mediating transformation, and P450-3A4 inhibitory actions. Psychopharmacology 145:113-122, 1999.
597. Granda BW, Giancarlo GM, von Moltke LL and Greenblatt DJ. Analysis of ritonavir in plasma/serum and tissues by high-performance liquid chromatography. Journal of Pharmacological and Toxicological Methods 40:235-239, 1999.
598. Shader RI, Harmatz JS, Oesterheld JR, Parmelee DX, Sallee FR and Greenblatt DJ. Population pharmacokinetics of methylphenidate in children with attention-deficit hyperactivity disorder. Journal of Clinical Pharmacology 39:775-785, 1999.
599. Ciraulo DA, Barnhill JG, Ciraulo AM, Sarid-Segal O, Knapp C, Greenblatt DJ, Shader RI. Alterations in pharmacodynamics of anxiolytics in abstinent alcoholic men: electroencephalographic effects of alprazolam, diazepam, and buspirone. Journal of Clinical Pharmacology 37:64-73, 1997.
600. Kotegawa T, Laurijssens BE, Durol ALB, Greenblatt DJ. Pharmacokinetics and electroencephalographic effects of ketoconazole in the rat. Biopharmaceutics & Drug Disposition 20:49-52, 1999.
601. Kaplan GB, Greenblatt DJ, Ehrenberg BL, Goddard JE, Harmatz JS and Shader RI. Differences in pharmacodynamics but not pharmacokinetics between subjects with panic disorder and healthy subjects after treatment with a single dose of alprazolam. Journal of Clinical Psychopharmacology 20:338-346, 2000.
602. Greenblatt DJ, von Moltke LL, Daily JP, Harmatz JS and Shader RI. Extensive impairment of triazolam and alprazolam clearance by short-term low-dose ritonavir: the clinical dilemma of concurrent inhibition and induction. Journal of Clinical Psychopharmacology 19:293-296, 1999.

603. Court MH, Hay-Kraus BL, Hill DW, Kind AJ and Greenblatt DJ. Propofol hydroxylation by dog liver microsomes: assay development and dog breed differences. Drug Metabolism and Disposition 27:1293-1299, 1999.
604. Zalma A, von Moltke LL, Granda BW, Harmatz JS, Shader RI and Greenblatt DJ. In vitro metabolism of trazodone by CYP3A: inhibition by ketoconazole and human immunodeficiency viral protease inhibitors. Biological Psychiatry 47:655-661, 2000.
605. Tsunoda SM, Velez RL, von Moltke LL and Greenblatt DJ. Differentiation of intestinal and hepatic cytochrome P450 3A activity with use of midazolam as an in vivo probe: effect of ketoconazole. Clinical Pharmacology and Therapeutics 66:461-471, 1999.
606. Perloff MD, von Moltke LL, Court MH, Kotegawa T, Shader RI and Greenblatt DJ. Midazolam and triazolam biotransformation in mouse and human liver microsomes: relative contribution of CYP3A and CYP2C9 isoforms. Journal of Pharmacology and Experimental Therapeutics 292:618-628, 2000.
607. Greenblatt DJ, von Moltke LL, Harmatz JS and Shader RI. Human cytochromes mediating sertraline biotransformation: seeking attribution. Journal of Clinical Psychopharmacology 19:489-493, 1999.
608. Warrington JS, Poku JW, von Moltke LL, Shader RI, Harmatz JS and Greenblatt DJ. The effects of age on in vitro midazolam biotransformation in male CD-1 mouse liver microsomes. Journal of Pharmacology and Experimental Therapeutics 292:1024-1031, 2000.
609. Sarid-Segal O, Knapp CM, Ciraulo AM, Greenblatt DJ, Shader RI and Ciraulo DA. Decreased EEG sensitivity to alprazolam in subjects with a parental history of alcoholism. Journal of Clinical Pharmacology 40:84-90, 2000.
610. Venkatakrisnan K, von Moltke LL, Obach RS and Greenblatt DJ. Microsomal binding of amitriptyline: effect on estimation of enzyme kinetic parameters in vitro. Journal of Pharmacology and Experimental Therapeutics 293:343-350, 2000.
611. Warrington JS, Shader RI, von Moltke LL and Greenblatt DJ. In vitro biotransformation of sildenafil (Viagra): identification of human cytochromes and potential drug interactions. Drug Metabolism and Disposition 28:392-397, 2000.
612. Hay Kraus BL, Greenblatt DJ, Venkatakrisnan K and Court MH. Evidence for propofol hydroxylation by cytochrome P4502B11 in canine liver microsomes: breed and gender differences. Xenobiotica 30:575-588, 2000.
613. Greenblatt DJ, von Moltke LL, Harmatz JS, Durol ALB, Daily JP, Graf JA, Mertzanis P, Hoffman JL and Shader RI. Alprazolam-ritonavir interaction: implications for product labeling. Clinical Pharmacology and Therapeutics 67:335-41, 2000.
614. Greenblatt DJ, von Moltke LL, Ehrenberg BL, Harmatz JS, Corbett K, Wallace DW and Shader RI. Kinetics and dynamics of lorazepam during and after continuous intravenous infusion. Critical Care Medicine 28:2750-2757, 2000.
615. Greenblatt DJ, Harmatz JS, von Moltke LL, Wright CE, Durol ALB, Harrel-Joseph LM and Shader RI. Comparative kinetics and response to the benzodiazepine agonists triazolam and zolpidem: evaluation of sex

- dependent differences. Journal of Pharmacology and Experimental Therapeutics 293:435-443, 2000.
616. Perloff MD, von Moltke LL, Fahey JM, Daily JP and Greenblatt DJ. Induction of P-glycoprotein expression by HIV protease inhibitors in cell culture. AIDS 14:1287-1289, 2000.
617. von Moltke LL, Durol ALB, Duan SX and Greenblatt DJ. Potent mechanism-based inhibition of human CYP3A *in vitro* by amprenavir and ritonavir: comparison with ketoconazole. European Journal of Clinical Pharmacology 56:259-261, 2000.
618. Greenblatt DJ, von Moltke LL, Harmatz JS, Durol ALB, Daily JP, Graf JA, Mertzanis P, Hoffman JL and Shader RI. Differential impairment of triazolam and zolpidem clearance by ritonavir. Journal of Acquired Immune Deficiency Syndromes 24:129-136, 2000.
619. Court MH and Greenblatt DJ. Molecular genetic basis for deficient acetaminophen glucuronidation by cats: UGT1A6 is a pseudogene, and evidence for reduced diversity of expressed hepatic UGT1A isoforms. Pharmacogenetics 10:355-369, 2000.
620. Shader RI, Granda BW, von Moltke LL, Giancarlo GM and Greenblatt DJ. Inhibition of human cytochrome P450 isoforms *in vitro* by zafirlukast. Biopharmaceutics and Drug Disposition 20:385-388, 1999.
621. Cotreau MM, von Moltke LL, Beinfeld MC and Greenblatt DJ. Methodologies to study the induction of rat hepatic and intestinal cytochrome P450 3A at the mRNA, protein, and catalytic activity level. Journal of Pharmacological and Toxicological Methods 43:41-54, 2000.
622. Kamimori GH, Sirisuth N, Greenblatt DJ and Eddington ND. The influence of the menstrual cycle on triazolam and indocyanine green pharmacokinetics. Journal of Clinical Pharmacology 40:739-744, 2000.
623. Hesse LM, Venkatakrishnan K, Court MH, von Moltke LL, Duan SX, Shader RI and Greenblatt DJ. CYP2B6 mediates the *in vitro* hydroxylation of bupropion: potential drug interactions with other antidepressants. Drug Metabolism and Disposition 28:1176-1183, 2000.
624. von Moltke LL, Greenblatt DJ, Granda BW, Giancarlo GM, Duan SX, Daily JP, Harmatz JS and Shader RI. Inhibition of human Cytochrome P450 isoforms by nonnucleoside reverse transcriptase inhibitors. Journal of Clinical Pharmacology 41:85-91, 2001.
625. Störmer E, von Moltke LL, Shader RI and Greenblatt DJ. Metabolism of the antidepressant mirtazapine *in vitro*: contribution of cytochromes P-450 1A2, 2D6 and 3A4. Drug Metabolism and Disposition 28:1168-1175, 2000.
626. Störmer E, von Moltke LL and Greenblatt DJ. Scaling drug biotransformation data from cDNA-expressed cytochrome P-450 to human liver: A comparison of relative activity factors and human liver abundance in studies of mirtazapine metabolism. Journal of Pharmacology and Experimental Therapeutics 295:793-801, 2000.
627. Court MH, Duan SX, Hesse LM, Venkatakrishnan K and Greenblatt DJ. Cytochrome P450 2B6 is responsible for interindividual variability of propofol hydroxylation by human liver microsomes. Anesthesiology 94:110-119, 2001.
628. Cotreau MM, von Moltke LL, Harmatz JS and Greenblatt DJ. Molecular and pharmacokinetic evaluation of rat hepatic and gastrointestinal

- cytochrome P450 induction by tamoxifen. Pharmacology 63:210-219, 2001.
629. Venkatakrishnan K, von Moltke LL, Court MH, Harmatz JS, Crespi CL and Greenblatt DJ. Comparison between cytochrome P450 (CYP) content and relative activity approaches to scaling from cDNA-expressed CYPs to human liver microsomes: ratios of accessory proteins as sources of discrepancies between the approaches. Drug Metabolism and Disposition 28:1493-1504, 2000.
630. Hesse LM, Venkatakrishnan K, von Moltke LL, Shader RI and Greenblatt DJ. CYP3A4 is the major CYP isoform mediating the *in vitro* hydroxylation and demethylation of flunitrazepam. Drug Metabolism and Disposition 29:133-140, 2001.
631. Hesse LM, von Moltke LL, Shader RI and Greenblatt DJ. Ritonavir, efavirenz, and nelfinavir inhibit CYP2B6 activity *in vitro*: potential drug interactions with bupropion. Drug Metabolism and Disposition 29:100-102, 2001.
632. Busto UE, Kaplan HL, Wright CE, Gomez-Mancilla B, Zawertailo L, Greenblatt DJ and Sellers EM. A comparative pharmacokinetic and dynamic evaluation of alprazolam sustained-release, bromazepam, and lorazepam. Journal of Clinical Psychopharmacology 20:628-635, 2000.
633. Rickels K, DeMartinis N, García-España F, Greenblatt DJ, Mandos LA and Rynn M. Imipramine and buspirone in treatment of patients with generalized anxiety disorder who are discontinuing long-term benzodiazepine therapy. American Journal of Psychiatry 157:1973-1979, 2000.
634. Giancarlo G, Venkatakrishnan K, Granda BW, von Moltke LL and Greenblatt DJ. Relative contributions of CYP2C9 and 2C19 to phenytoin 4-hydroxylation *in vitro*: inhibition by sulfaphenazole, omeprazole and ticlopidine. European Journal of Clinical Pharmacology 57:31-36, 2001.
635. Venkatakrishnan K, von Moltke LL and Greenblatt DJ. Application of the relative activity factor approach in scaling from heterologously expressed cytochromes P450 to human liver microsomes: studies on amitriptyline as a model substrate. Journal of Pharmacology and Experimental Therapeutics 297:326-337, 2001.
636. Fahey JM, Pritchard GA, Grassi JM, Pratt JS, Shader RI and Greenblatt DJ. Pharmacodynamic and receptor binding changes during chronic lorazepam administration. Pharmacology, Biochemistry and Behavior 69:1-8, 2001.
637. Soriano SG, Sullivan LJ, Venkatakrishnan K, Greenblatt DJ and Martyn JAJ. Pharmacokinetics and pharmacodynamics of vecuronium in children receiving phenytoin or carbamazepine for chronic anticonvulsant therapy. British Journal of Anaesthesia 86:223-229, 2001.
638. Störmer E, von Moltke LL, Perloff MD and Greenblatt DJ. P-glycoprotein interactions of nefazodone and trazodone in cell culture. Journal of Clinical Pharmacology 41:708-714, 2001.
639. Störmer E, Perloff MD, von Moltke LL and Greenblatt DJ. Methadone inhibits rhodamine 123 transport in caco-2 cells. Drug Metabolism and Disposition 29:954-956, 2001.
640. von Moltke LL, Greenblatt DJ, Giancarlo GM, Granda BW, Harmatz JS and Shader RI. Escitalopram (S-Citalopram) and its metabolites *in vitro*: cytochromes mediating biotransformation, inhibitory effects, and

comparison to R-Citalopram. Drug Metabolism and Disposition 29:1102-1109, 2001.

641. Venkatakrishnan K, Schmider J, Harmatz JS, Ehrenberg BL, von Moltke LL, Graf JA, Mertzanis P, Corbett KE, Rodriguez MC, Shader RI and Greenblatt DJ. Relative contribution of CYP3A to amitriptyline clearance in humans: *in vitro* and *in vivo* studies. Journal of Clinical Pharmacology 41:1043-1054, 2001.
642. Ciraulo D, Knapp CM, LoCastro J, Greenblatt DJ and Shader RI. A benzodiazepine mood effect scale: reliability and validity determined for alcohol-dependent subjects and adults with a parental history of alcoholism. American Journal of Drug and Alcohol Abuse 27:339-347, 2001.
643. Perloff MD, von Moltke LL, Marchand JE and Greenblatt DJ. Ritonavir induces P-glycoprotein expression, multidrug resistance-associated protein (MRP1) expression, and drug transporter-mediated activity in a human intestinal cell line. Journal of Pharmaceutical Sciences 90:1829-1837, 2001.
644. Laurijssens BE and Greenblatt DJ. Effect of 7-day exposure to midazolam on electroencephalogram pharmacodynamics in rats: a model to study multiple pharmacokinetic-pharmacodynamic relationships in individual animals. Journal of Pharmacy and Pharmacology 54:77-86, 2002.
645. Court MH, Duan SX, von Moltke LL, Greenblatt DJ, Patten CJ, Miners JO and Mackenzie PI. Interindividual variability in acetaminophen glucuronidation by human liver microsomes: identification of relevant acetaminophen UDP-glucuronosyltransferase isoforms. Journal of Pharmacology and Experimental Therapeutics 299:998-1006, 2001.
646. Perloff MD, von Moltke LL, Störmer E, Shader RI and Greenblatt DJ. Saint John's wort: An *in vitro* analysis of P-glycoprotein induction due to extended exposure. British Journal of Pharmacology 134:1601-1608, 2001.
647. Kim JS, Nafziger AN, Tsunoda SM, Choo EF, Streetman DS, Kashuba AD, Kulawy RW, Beck DJ, Rocci ML, Wilkinson GR, Greenblatt DJ and Bertino JS. Limited sampling strategy to predict AUC of the CYP3A phenotyping probe midazolam in adults: application to various assay techniques. Journal of Clinical Pharmacology 42: 376-382, 2002.
648. Warrington JS, von Moltke LL, Shader RI and Greenblatt DJ. *In vitro* biotransformation of sildenafil (Viagra) in the male rat: the role of CYP2C11. Drug Metabolism and Disposition 30:655-657, 2002.
649. Venkatakrishnan K, von Moltke LL and Greenblatt DJ. Evaluation of Supermix™ as an *in vitro* model of human liver microsomal drug metabolism. Biopharmaceutics & Drug Disposition 23:183-190, 2002.
650. Störmer E, von Moltke LL, Perloff MD and Greenblatt DJ. Differential modulation of P-glycoprotein expression and activity by non-nucleoside HIV-1 reverse transcriptase inhibitors in cell culture. Pharmaceutical Research 19:1038-1045, 2002.
651. Kotegawa T, Laurijssens BE, von Moltke LL, Cotreau MM, Perloff MD, Venkatakrishnan K, Warrington JS, Granda BW, Harmatz JS and Greenblatt DJ. *In vitro*, pharmacokinetic, and pharmacodynamic interactions of ketoconazole and midazolam in the rat. Journal of Pharmacology and Experimental Therapeutics 302:1228-1237, 2002.

652. von Moltke LL, Weemhoff JL, Perloff MD, Hesse LM, Harmatz JS, Roth-Schechter BF and Greenblatt DJ. Effect of zolpidem on human cytochrome P450 activity, and on transport mediated by P-glycoprotein. Biopharmaceutics and Drug Disposition 23:361-367, 2002.
653. Perloff MD, von Moltke LL and Greenblatt DJ. Fexofenadine transport in Caco-2 cells: inhibition with verapamil and ritonavir. Journal of Clinical Pharmacology 42:1269-1274, 2002.
654. Olubodun JO, Ochs HR, Trüten V, Klein A, von Moltke LL, Harmatz JS, Shader RI and Greenblatt DJ. Zolpidem pharmacokinetic properties in young females: influence of smoking and oral contraceptive use. Journal of Clinical Pharmacology 42:1142-1146, 2002.
655. Court MH, Duan SX, Guillemette C, Journault K, Krishnaswamy S, Von Moltke LL and Greenblatt DJ. Stereoselective conjugation of oxazepam by human UDP-glucuronosyltransferases (UGTs): S-oxazepam is glucuronidated by UGT2B15, while R-oxazepam is glucuronidated by UGT2B7 and UGT1A9. Drug Metabolism and Disposition 30:1257-1265, 2002.
656. Tran TH, von Moltke LL, Venkatakrishnan K, Granda BW, Gibbs MA, Obach RS, Harmatz JS and Greenblatt DJ. Microsomal protein concentration modifies the apparent inhibitory potency of CYP3A inhibitors. Drug Metabolism and Disposition 30:1441-1445, 2002.
657. Greenblatt DJ, von Moltke LL, Giancarlo GM and Garteiz DA. Human cytochromes mediating gepirone biotransformation at low substrate concentrations. Biopharmaceutics & Drug Disposition 24:87-94, 2003.
658. Perloff MD, von Moltke LL, Greenblatt, DJ. Differential metabolism of midazolam in mouse liver and intestine microsomes: A comparison of cytochrome P450 activity and expression. Xenobiotica 33:365-377, 2003.
659. Vishnuvardhan D, von Moltke LL, Richert C, Greenblatt DJ. Lopinavir: Acute exposure inhibits P-glycoprotein; extended exposure induces P-glycoprotein. AIDS 17:1092-1094, 2003.
660. Weemhoff JL, von Moltke LL, Richert C, Hesse LM, Harmatz JS, Greenblatt, DJ. Apparent mechanism-based inhibition of human CYP3A in vitro by lopinavir. Journal of Pharmacy and Pharmacology 55:381-386, 2003.
661. Bertelsen KM, Venkatakrishnan K, von Moltke LL, Obach RS and Greenblatt DJ. Apparent mechanism-based inhibition of human CYP2D6 in vitro by paroxetine: comparison with fluoxetine and quinidine. Drug Metabolism and Disposition 31:289-293, 2003.
662. Krishnaswamy S, Duan SX, von Moltke LL, Greenblatt DJ, Court, MH. Validation of serotonin (5-hydroxytryptamine) as an in vitro substrate probe for human UDP-glucuronosyltransferase (UGT) 1A6. Drug Metabolism and Disposition 31:133-139, 2003.
663. Greenblatt DJ, von Moltke LL, Harmatz JS, Fogelman SM, Chen G et al. Short term exposure to low-dose ritonavir impairs clearance and enhances adverse effects of trazodone. Journal of Clinical Pharmacology 43:414-422, 2003.
664. Olubodun JO, Ochs HR, von Moltke LL, Roubenoff R, Hesse LM, Harmatz JS, Shader RI and Greenblatt DJ. Pharmacokinetic properties of zolpidem in elderly and young adults: possible modulation by



- testosterone in men. British Journal of Clinical Pharmacology 56: 297-304, 2003.
665. Krishnaswamy S, Duan SX, von Moltke LL, Greenblatt DJ, Sudmeier JL, Bachovchin WW and Court MH. Serotonin (5-hydroxytryptamine) glucuronidation in vitro: assay development, human liver microsome activities and species differences. Xenobiotica 33:169-180, 2003.
666. Patki KC, von Moltke LL and Greenblatt DJ. In-vitro metabolism of midazolam, triazolam, nifedipine and testosterone by human liver microsomes and recombinant cytochromes P450: Role of CYP3A4 and CYP3A5. Drug Metabolism and Disposition 31:938-944, 2003.
667. Greenblatt DJ, von Moltke LL, Harmatz JS, Chen G, Weemhoff JL, Jen C, Kelley CJ, LeDuc BW and Zinny MA. Time-course of recovery of CYP3A function following single doses of grapefruit juice. Clinical Pharmacology and Therapeutics 74:121-129, 2003.
668. Hesse LM, Sakai Y, Vishnuvardhan D, Li AP, von Moltke LL, and Greenblatt DJ. Effect of bupropion on CYP2B6 and CYP3A4 catalytic activity, immunoreactive protein, and mRNA levels in primary human hepatocytes: comparison with rifampicin. Journal of Pharmacy and Pharmacology 55:1229-1239, 2003.
669. Zawertailo LA, Busto UE, Kaplan HL, Greenblatt DJ and Sellers EM. Comparative abuse liability and pharmacological effects of meprobamate, triazolam, and butabarbital. J Clin Psychopharmacol 23:269-280, 2003.
670. Warrington JS, von Moltke LL, Harmatz JS, Shader RI and Greenblatt DJ. The effect of age on sildenafil biotransformation in rat and mouse liver microsomes. Drug Metab Dispos 31:1306-1309, 2003.
671. Court MH, Krishnaswamy S, Hao Q, Duan SX, Patten CJ, von Moltke LL and Greenblatt DJ. Evaluation of 3'-azido-3'-deoxythymidine, morphine, and codeine as probe substrates for UDP-glucuronosyltransferase 2B7 (UGT2B7) in human liver microsomes: specificity and influence of the UGT2B7\*2 polymorphism. Drug Metab Dispos 31:1125-1133, 2003.
672. Perloff MD, von Moltke LL and Greenblatt DJ. Ritonavir and dexamethasone induce expression of CYP3A and P-glycoprotein in rats. Xenobiotica 34: 113-150, 2004.
673. Patki KC, von Moltke LL, Harmatz JS, Hesse LM, Court MH and Greenblatt DJ. Effect of age on in vitro triazolam biotransformation in male human liver microsomes. Journal of Pharmacology and Experimental Therapeutics 308:874-879, 2004.
674. Rynn M, Garcia-Espana F, Greenblatt DJ, Mandos LA, Schweizer E and Rickels K. Imipramine and buspirone in patients with panic disorder who are discontinuing long-term benzodiazepine therapy. J Clin Psychopharmacol 23:505-508, 2003.
675. Warrington JS, Greenblatt DJ and von Moltke LL. Age-related differences in CYP3A expression and activity in the rat liver, intestine and kidney. Journal of Pharmacology and Experimental Therapeutics 309:720-729, 2004.

676. Warrington JS, Greenblatt DJ and von Moltke LL. The effect of age on P-glycoprotein expression and function in the Fischer-344 rat. J Pharmacol Exp Ther 309:730-736, 2004.
677. Warrington JS, Court MH, Greenblatt DJ and von Moltke LL. Phenacetin and chlorzoxazone biotransformation in aging male Fischer 344 rats. Journal of Pharmacy and Pharmacology 56: 819-825, 2004.
678. Warrington JS, Greenblatt DJ and von Moltke LL. The role of CYP3A enzymes in the biotransformation of triazolam in the rat liver. Xenobiotica 34:463-471, 2004.
679. Greenblatt DJ, Ehrenberg BL, Culm KE, Scavone JM, Corbett KC, Friedman HL, Harmatz JS and Shader RI. Kinetics and EEG effects of midazolam during and after one-minute, one-hour, and three-hour intravenous infusions. Journal of Clinical Pharmacology 44:605-611, 2004.
680. Hesse LM, He P, Krishnaswamy S, Hao Q, Hogan K, von Moltke LL, Greenblatt DJ and Court MH. Pharmacogenetic determinants of interindividual variability in bupropion hydroxylation by cytochrome P450 2B6 in human liver microsomes. Pharmacogenetics 14:225-238, 2004.
681. Court MH, Hao Q, Krishnaswamy S, Bekaii-Saab T, Al-Rohaimi A, von Moltke LL and Greenblatt DJ. UDP-glucuronosyltransferase (UGT) 2B15 pharmacogenetics: UGT2B15 D85Y genotype and gender are major determinants of oxazepam glucuronidation by human liver. J Pharmacol Exp Ther 310: 656-665, 2004.
682. von Moltke LL, Granda BW, Grassi JM, Perloff MD, Vishnuvardhan D and Greenblatt DJ. Interaction of triazolam and ketoconazole in P-glycoprotein-deficient mice. Drug Metab Dispos 32: 800-804, 2004.
683. Mitin T, von Moltke LL, Court MH and Greenblatt DJ. Levothyroxine upregulates P-glycoprotein independent of the Pregnane X receptor. Drug Metab Dispos 32: 779-782, 2004.
684. von Moltke LL, Weemhoff JL, Bedir E, Khan IA, Harmatz JS, Goldman P, Grenblat DJ. Inhibition of human cytochromes P450 by components of Ginkgo biloba. Journal of Pharmacy and Pharmacology. 2004; 56: 1039-1044.
685. Patki KC, Greenblatt DJ and von Moltke LL. Ethanol inhibits in vitro metabolism of nifedipine, triazolam and testosterone in human liver microsomes. Journal of Pharmacy and Pharmacology 56:963-966, 2004.
686. Bekaii-Saab TS, Perloff MD, Weemhoff JL, Greenblatt DJ and von Moltke LL. Interactions of tamoxifen, N-desmethyltamoxifen and 4-hydroxytamoxifen with P-glycoprotein and CYP3A. Biopharm Drug Dispos 25:283-289, 2004.
687. Pomara N, Willoughby LM, Ritchie JC, Sidtis JJ, Greenblatt DJ and Nemeroff CB. Interdose elevation in plasma cortisol during chronic treatment with alprazolam but not lorazepam in the elderly. Neuropsychopharmacology 29:605-611, 2004.
688. Girard H, Court MH, Bernard O, Fortier L-C, Villeneuve L, Hao Q, Greenblatt DJ, von Moltke LL, Perusse L and Guillemette C. Identification of common polymorphisms in the promoter of the UGT1A9 gene: evidence that UGT1A9 protein and activity levels are strongly

- genetically controlled in the liver. Pharmacogenetics 14:501-515, 2004.
689. Venkatakrishnan K, Culm KE, Ehrenberg BL, Harmatz JS, Corbett KC, Fleishaker JC and Greenblatt DJ. Kinetics and dynamics of intravenous adinazolam, N-desmethyl adinazolam, and alprazolam in healthy volunteers. Journal of Clinical Pharmacology 45:529-537, 2005.
690. Krishnaswamy S, Hao Q, Von Moltke LL, Greenblatt DJ and Court MH. Evaluation of 5-hydroxytryptophol and other endogenous serotonin (5-hydroxytryptamine) analogs as substrates for UDP-glucuronosyltransferase 1A6. Drug Metab Dispos 32:862-869, 2004.
691. Greenblatt DJ, Harmatz JS, von Moltke LL, Wright CE and Shader RI. Age and gender effects on the pharmacokinetics and pharmacodynamics of triazolam, a cytochrome P450 3A substrate. Clinical Pharmacology and Therapeutics 76:467-479, 2004.
692. Girard H, Court MH, Bernard O, Fortier LC, Villeneuve L, Hao Q, Greenblatt DJ, von Moltke LL, Perusse L and Guillemette C. Identification of common polymorphisms in the promoter of the UGT1A9 gene: evidence that UGT1A9 protein and activity levels are strongly genetically controlled in the liver. Pharmacogenetics 14:501-515, 2004.
693. Pomara N, Willoughby LM, Hashim A, Sershen H, Sidtis JJ, Wesnes K, Greenblatt DJ and Lajtha A. Effects of acute lorazepam administration on aminergic activity in normal elderly subjects: relationship to performance effects and apolipoprotein genotype. Neurochem Res 29:1391-1398, 2004.
694. Harvey AT, Flockhart D, Gorski JC, Greenblatt DJ, Burke M, Werder S and Preskorn SH. Intramuscular haloperidol or lorazepam and QT intervals in schizophrenia. J Clin Pharmacol 44:1173-1184, 2004.
695. He P, Court MH, Greenblatt DJ, and von Moltke LL. Genotype-phenotype associations of CYP3A4 and CYP3A5 polymorphism with midazolam clearance in vivo. Clin Pharmacology and Therapeutics 77:373-387, 2005.
696. Greenblatt DJ, Gan L, Harmatz JS and Shader RI. Pharmacokinetics and pharmacodynamics of single-dose triazolam: electroencephalography compared with the digit-symbol substitution test. Brit J Clin Pharmacol 2005 60: 244-248, 2005.
697. Ciraulo DA, Knapp C, Rotrosen J, Sarid-Segal O, Ciraulo AM, LoCastro J, Greenblatt DJ and Leiderman D. Nefazodone treatment of cocaine dependence with comorbid depressive symptoms. Addiction 100 Suppl 1:23-31, 2005.
698. Culm-Merdek KE, von Moltke LL, Harmatz JS and Greenblatt DJ. Fluvoxamine impairs single-dose caffeine clearance without altering caffeine pharmacodynamics. Brit J Clin Pharmacol 60:486-493, 2005.
699. Perloff ES, Duan SX, Skolnik PR, Greenblatt DJ and von Moltke LL. Atazanavir: effects on P-glycoprotein transport and CYP3A metabolism in vitro. Drug Metab Dispos 33:764-770, 2005.

700. Greenblatt DJ, Blaskovich PD, Nuwayser ES, Harmatz JS, Chen G and Zinny MA. Clonazepam pharmacokinetics: comparison of subcutaneous microsphere injection with multiple-dose oral administration. Journal of Clinical Pharmacology 45:1288-1293, 2005
701. Wolf KK, Wood SG, Hunt JA, Walton-Strong BW, Kazuto Y et al. Role of the nuclear receptor PXR in acetaminophen hepatotoxicity. Drug Metabolism and Disposition 33:1827-1836, 2005.
702. Krishnaswamy S, Hao Q, Al-Rohaimi A, Hesse LM, von Moltke LL, Greenblatt DJ and Court MH. UDP glucuronosyltransferase (UGT) 1A6 pharmacogenetics: I. Identification of polymorphisms in the 5'-regulatory and exon 1 regions, and association with human liver UGT1A6 gene expression and glucuronidation. J Pharmacol Exp Ther 2005;313:1331-1339.
703. Krishnaswamy S, Hao Q, Al-Rohaimi A, Hesse LM, von Moltke LL, Greenblatt DJ and Court MH. UDP glucuronosyltransferase (UGT) 1A6 pharmacogenetics: II. Functional impact of the three most common nonsynonymous UGT1A6 polymorphisms (S7A, T181A, and R184S). J Pharmacol Exp Ther 2005;313:1340-1346.
704. Girard H, Thibaudeau J, Court MH, Fortier LC, Villeneuve L, Caron P, Hao Q, von Moltke LL, Greenblatt DJ and Guillemette C. UGT1A1 polymorphisms are important determinants of dietary carcinogen detoxification in the liver. Hepatology 2005;42:448-457.
705. Greenblatt DJ, von Moltke LL, Perloff ES, Luo Y, Harmatz JS and Zinny MA. Interaction of flurbiprofen with cranberry juice, grape juice, tea, and fluconazole: in vitro and clinical studies. Clin Pharmacol Ther 2006;79:125-133.
706. Greenblatt DJ, von Moltke LL, Luo Y, Perloff ES, Horan KA, Bruce A, Reynolds RC, Harmatz JS, Avula B, Khan IA and Goldman P. Ginkgo biloba does not alter clearance of flurbiprofen, a Cytochrome P450-2C9 substrate. J Clin Pharmacol 2006;46:214-221.
707. Culm-Merdek KE, von Moltke LL, Gan L, Horan KA, Reynolds R, Harmatz JS, Court MH and Greenblatt DJ. Effect of extended exposure to grapefruit juice on cytochrome P450 3A activity in humans: Comparison with ritonavir. Clin Pharmacol Ther 2006;79:243-254.
708. Fahey JM, Grassi JM, Reddi JM and Greenblatt DJ. Acute zolpidem administration produces pharmacodynamic and receptor occupancy changes at similar doses. Pharmacology, Biochemistry and Behavior 2006;83:21-7.
709. Bertelsen KM, Greenblatt DJ and von Moltke LL. Apparent active transport of MDMA is not mediated by P-glycoprotein; a comparison with MDCK and caco-2 monolayers. Biopharm Drug Dispos 2006;27:219-227.
710. Hesse LM, Greenblatt DJ, von Moltke LL and Court MH. Ritonavir has minimal impact on the pharmacokinetic disposition of a single dose of bupropion administered to human volunteers. Journal of Clinical Pharmacology 2006;46:567-576.
711. Pomara N, Facelle TM, Roth AE, Willoughby LM, Greenblatt DJ and Sidtis JJ. Dose-dependent retrograde facilitation of verbal memory in healthy

elderly following acute oral lorazepam administration.  
Psychopharmacology 2006;185:487-494.

712. Ciraulo DA, Hitzemann RJ, Somoza E, Knapp CM, Rotrosen J, Sarid-Segal O, Ciraulo AM, Greenblatt DJ and Chiang CN. Pharmacokinetics and pharmacodynamics of multiple sublingual buprenorphine tablets in dose-escalation trials. Journal of Clinical Pharmacology 2006;46:179-192.
713. He P, Court MH, Greenblatt DJ and von Moltke LL. Factors influencing midazolam hydroxylation activity in human liver microsomes. Drug Metabolism and Disposition 2006;34:1198-1207.
714. Ramachandran G, Kumar AK, Swaminathan S, Venkatesan P, Kumaraswami V and Greenblatt DJ. Simple and rapid liquid chromatography method for determination of efavirenz in plasma. Journal of Chromatography B Analytical Technology Biomedical Life Sciences 2006;835:131-135.
715. de Wit M, Best AM, Epstein SK and Greenblatt DJ. Lorazepam concentrations, pharmacokinetics and pharmacodynamics in a cohort of mechanically ventilated ICU patients. International Journal of Clinical Pharmacology and Therapeutics 2006;44:466-473.
716. He P, Court MH, Greenblatt DJ, and von Moltke LL. Human pregnane X receptor: genetic polymorphisms, alternative mRNA splice variants, and cytochrome P450 3A metabolic activity. Journal of Clinical Pharmacology 2006;46:1356-1369.
717. Greenblatt DJ, Legangneux E, Harmatz JS, Weinling E, Freeman J, Rice K and Zammit G. Dynamics and kinetics of a modified-release formulation of zolpidem: comparison with immediate-release standard zolpidem and placebo. J Clin Pharmacol 2006;46:1469-1480.
718. Fahey JM, Pritchard GA, Reddi JM, Pratt JS, Grassi JM, Shader RI, and Greenblatt DJ. The effect of chronic lorazepam administration in aging mice. Brain Research 2006; 1118: 13-24.
719. Han T, Harmatz JS, Greenblatt DJ and Martyn JAJ. Fentanyl clearance and volume of distribution are increased in patients with major burns. Journal of Clinical Pharmacology 2007;47:674-680.
720. Preskorn SH, Greenblatt DJ, Flockhart D, Luo Y, Perloff ES, Harmatz JS, Baker B, Klick-Davis A, Desta Z and Burt T. Comparison of duloxetine, escitalopram, and sertraline effects on Cytochrome P450 2D6 function in healthy volunteers. J Clin Psychopharmacol 2007;27:28-34.
721. Greenblatt DJ, Harmatz JS and Karim A. Age and gender effects on the pharmacokinetics and pharmacodynamics of ramelteon, a hypnotic agent acting via melatonin receptors MT<sub>1</sub> and MT<sub>2</sub>. Journal of Clinical Pharmacology 2007;47:485-496.
722. Farkas D, Oleson LE, Zhao Y, Harmatz JS, Zinny MA, Court MH and Greenblatt DJ. Pomegranate juice does not impair clearance of oral or intravenous midazolam, a probe for cytochrome P450-3A activity: comparison with grapefruit juice. Journal of Clinical Pharmacology 2007;47:286-294.
723. Perloff MD, von Moltke LL, Fahey JM and Greenblatt DJ. Induction of P-glycoprotein expression and activity by ritonavir in bovine brain

- microvessel endothelial cells. Journal of Pharmacy and Pharmacology 2007;59:947-953.
724. Girard H, Villeneuve L, Court MH, Fortier LC, Caron P, Hao Q, von Moltke LL, Greenblatt DJ and Guillemette C. The novel UGT1A9 intronic I399 polymorphism appears as a predictor of 7-ethyl-10-hydroxycamptothecin glucuronidation levels in the liver. Drug Metab Dispos 2006;34:1220-1228.
725. Cysneiros RM, Farkas D, Harmatz JS, von Moltke LL and Greenblatt DJ. Pharmacokinetic and pharmacodynamic interactions between zolpidem and caffeine. Clin Pharmacol Ther 2007;82:54-62.
726. Wolf KK, Wood SG, Allard JL, Hunt JA, Gorman N, Walton-Strong BW, Szakacs JG, Duan SX, Hao Q, Court MH, von Moltke LL, Greenblatt DJ, Kostrubsky V, Jeffery EH, Wrighton SA, Gonzalez FJ, Sinclair PR and Sinclair JF. Role of CYP3A and CYP2E1 in alcohol-mediated increases in acetaminophen hepatotoxicity: comparison of wild-type and Cyp2e1(-/-) mice. Drug Metab Dispos 2007;35:1223-1231.
727. Kwara A, Lartey M, Sagoe KW, Xexemedu F, Kenu E, Oliver-Commey J, Boima V, Sagoe A, Boamah I, Greenblatt DJ, Court MH. Pharmacokinetics of efavirenz when co-administered with rifampin in TB/HIV co-infected patients: Pharmacogenetic effect of CYP2B6 variation. Journal of Clinical Pharmacology 2008; 48: 1032-1040.
728. Knox TA, Oleson L, von Moltke LL, Kaufman RC, Wanke CA and Greenblatt DJ. Ritonavir greatly impairs CYP3A activity in HIV infection with chronic viral hepatitis. J AIDS 2008; 49: 358-368.
729. Gan L, von Moltke LL, Trepanier LA, Harmatz JS, Greenblatt DJ and Court MH. Role of NADPH-cytochrome P450 reductase and cytochrome b<sub>5</sub>/NADH b<sub>5</sub> reductase in variability of CYP3A activity in human liver microsomes. Drug Metabolism and Disposition 2009; 37: 90-96.
730. Farkas D, Volak LP, Harmatz JS, von Moltke LL, Court MH and Greenblatt DJ. Short-term clarithromycin administration impairs clearance and enhances pharmacodynamic effects of trazodone but not of zolpidem. Clinical Pharmacology and Therapeutics 2009; 85: 644-650.
731. Han T, Kaneda K, Greenblatt DJ and Martyn JAJ. Propofol clearance and volume of distribution are increased in patients with major burns. Journal of Clinical Pharmacology 2009; 49: 768-772.
732. Rhee MH, Hellinger JA, Sheble-Hall S, Cohen CJ and Greenblatt DJ. Relationship between plasma protease inhibitor concentrations and lipid elevations in HIV patients on double-boosted protease inhibitor regimens (saquinavir/lopinavir/ritonavir). Journal of Clinical Pharmacology 2010; 50: 392-400.
733. Ansell J, McDonough M, Zhao Y, Harmatz JS and Greenblatt DJ. The absence of an interaction between warfarin and cranberry juice: A randomized, double-blind trial. Journal of Clinical Pharmacology 2009; 49: 824-830.
734. He X, Hesse LM, Hazarika S, Masse G, Harmatz JS, Greenblatt DJ and Court MH. Evidence for oxazepam as an in vivo probe of UGT2B15: oxazepam clearance is reduced by UGT2B15 D85Y polymorphism but

unaffected by UGT2B17 deletion. British Journal of Clinical Pharmacology 2009; 68: 721-730.

735. Greenblatt DJ, Peters DE, Oleson LE, Harmatz JS, MacNab MW, Berkowitz N, Zinny MA and Court MH. Inhibition of oral midazolam clearance by boosting doses of ritonavir, and by 4,4-dimethyl-benziso-(2H)-selenazine (ALT-2074), an experimental catalytic mimic of glutathione oxidase. British Journal of Clinical Pharmacology 2009; 68: 920-927.
736. Oleson L, von Moltke LL, Greenblatt DJ and Court MH. Identification of polymorphisms in the 3'-untranslated region of the human Pregnane X Receptor (PXR) gene associated with variability in Cytochrome P450 3A (CYP3A) metabolism. Xenobiotica 2010; 40: 146-162.
737. Yin W, Karyagina EV, Lundberg AS, Greenblatt DJ and Lister-James J. Pharmacokinetics, bioavailability and effects on electrocardiographic parameters of oral fludarabine phosphate. Biopharmaceutics and Drug Disposition 2010; 31: 72-81.
738. Atassi N, Ratai E, Greenblatt DJ, Pulley D, Zhao Y, Wallace S, Bombardier J, Eckendrode J, Cudkowicz M and DiBernardo A. A phase I, pharmacokinetic, dosage-escalation study of creatine monohydrate in subjects with amyotrophic lateral sclerosis. Amyotrophic Lateral Sclerosis 2010; 11: 508-513.
739. Reddy P, Ellington D, Zhu Y, Zdrojewski I, Parent SJ, Harmatz JS, Derendorf H, Greenblatt DJ and Browne K. Serum concentrations and clinical effects of atorvastatin in patients taking grapefruit juice daily. British Journal of Clinical Pharmacology 2011; 72: 434-441.
740. Greenblatt DJ, Zhao Y, Venkatakrishnan K, Duan SX, Harmatz JS, Parent SJ, Court MH and von Moltke LL. Mechanism of cytochrome P450-3A inhibition by ketoconazole. Journal of Pharmacy and Pharmacology 2011; 63: 214-221.
741. Kwara A, Tashima KT, Dumond JB, Poethke P, Kurpewski J, Kashuba AD, Court MH and Greenblatt DJ. Modest but variable effect of rifampin on steady-state plasma pharmacokinetics of efavirenz in healthy African-American and Caucasian volunteers. Antimicrob Agents Chemother 2011; 55: 3527-3533.
742. Greenblatt DJ, Harmatz JS, Walsh J, Luthringer R, Staner L, Otmani S, Nedelec J, Francart C, Parent SJ and Staner C. Pharmacokinetic profile of SKP-1041, a modified release formulation of zaleplon. Biopharmaceutics & Drug Disposition 2011; 32: 489-497.
743. Smithline HA, Donnino M and Greenblatt DJ. Pharmacokinetics of high-dose oral thiamine hydrochloride in healthy subjects. BMC Clinical Pharmacology 2012; 12: 4.
744. Spunt SL, Grupp SA, Vik TA, Santana VM, Greenblatt DJ, Clancy J, Berkenblit A, Krygowski M, Ananthakrishnan R, Boni JP and Gilbertson RJ. Phase I study of temsirolimus in pediatric patients with recurrent/refractory solid tumors. Journal of Clinical Oncology 2011; 29: 2933-2940.
745. Pomara N, Bruno D, Sidtis JJ, Lutz MW, Greenblatt DJ, Saunders AM and Roses AD. Translocase of outer mitochondrial membrane 40 homolog (TOMM40) poly-T length modulates lorazepam-related cognitive toxicity

in healthy APOE epsilon4-negative elderly. Journal of Clinical Psychopharmacology 2011; 31: 544-546.

746. Greenblatt DJ, Zhao Y, Hanley MJ, Chen C, Harmatz JS, Cancalon PF and Gmitter FG. Mechanism-based inhibition of human Cytochrome P450-3A (CYP3A) activity by grapefruit hybrids having low furanocoumarin content. Xenobiotica 2012; 42: 1163-1169.
747. Volak LP, Hanley MJ, Masse G, Hazarika S, Harmatz JS, Badmaev V, Majeed M, Greenblatt DJ and Court MH. Effect of a herbal extract containing curcumin and piperine on midazolam, flurbiprofen, and paracetamol (acetaminophen) pharmacokinetics in healthy volunteers. British Journal of Clinical Pharmacology 2012; 75: 450-462.
748. Hanley MJ, Masse G, Harmatz JS, Court MH and Greenblatt DJ. Pomegranate juice and pomegranate extract do not impair oral clearance of flurbiprofen in human volunteers: Divergence from in vitro results. Clinical Pharmacology and Therapeutics 2012; 92: 851-857.
749. Hanley MJ, Masse G, Harmatz JS, Cancalon PF, Dolnikowski GG, Court MH and Greenblatt DJ. Effect of blueberry juice on clearance of buspirone and flurbiprofen in human volunteers. British Journal of Clinical Pharmacology 2013; 75: 1041-1052.
750. Court MH, Freytsis M, Wang X, Peter I, Guillemette C, Hazarika S, Duan SX, Greenblatt DJ, Lee WM and the Acute Liver Failure Study Group. The UDP-glucuronosyltransferase (UGT) 1A polymorphism c.2042C>G (rs8330) is associated with increased human liver acetaminophen glucuronidation, increased UGT1A exon 5a/5b splice variant mRNA ratio, and decreased risk of unintentional acetaminophen-induced acute liver failure. Journal of Pharmacology and Experimental Therapeutics 2013; 345: 297-307.
751. Yasar U, Greenblatt DJ, Guillemette C and Court MH. Evidence for regulation of UDP-glucuronosyltransferase (UGT) 1A1 protein expression and activity via DNA methylation in healthy human livers. Journal of Pharmacy and Pharmacology 2013; 65: 874-883.
752. Greenblatt DJ, Harmatz JS, Roth T, Singh NN, Moline ML, Harris SC and Kapil RP. Comparison of pharmacokinetic profiles of zolpidem buffered sublingual tablet and zolpidem oral immediate-release tablet. Clinical Therapeutics 2013; 35: 604-611.
753. Berry JD, Shefner JM, Conwit R, Schoenfeld D, Keroack M, Felsenstein D, Krivickas L, David WS, Vriesendorp F, Pestronk A, Caress J, Katz J, Simpson E, Rosenfeld J, Pascuzzi R, Glass J, Rezanian K, Rothstein J, Greenblatt DJ and Cudkowicz M. Design and initial results of a multi-phase randomized trial of ceftriaxone in amyotrophic lateral sclerosis. PLoS ONE 2013 Apr 17; 8: e61177.
754. Greenblatt DJ, Harmatz JS, Singh NN, Roth T, Harris SC, Kapil RP. Influence of food on pharmacokinetics of zolpidem from fast dissolving sublingual zolpidem tartrate tablets. Journal of Clinical Pharmacology 2013; 53: 1194-1198.
755. Court MH, Peter I, Hazarika S, Vasiadi M, Greenblatt DJ, Lee WM, and the Acute Liver Failure Study Group. Candidate gene polymorphisms in patients with acetaminophen-induced acute liver failure. Drug Metabolism and Disposition 2014; 42: 28-32.



756. Greenblatt DJ, Harmatz JS, Singh NN, Steinberg F, Roth T, Moline ML, Harris SC, Kapil RP. Gender differences in the pharmacokinetics and pharmacodynamics of zolpidem following sublingual administration. Journal of Clinical Pharmacology 2014; 54: 282-290.
757. Epstein LC, Masse G, Harmatz JS, Scott TM, Papas AS, Greenblatt DJ. Characterization of cognitive dysfunction in Sjögren's Syndrome patients. Clinical Rheumatology 2014; 33: 511-521.
758. Court MH, Almutairi FE, Greenblatt DJ, Hazarika S, Sheng H, Klein K, Zanger UM, Bourgea J, Patten CJ, Kwara A. Isoniazid mediates the CYP2B6\*6 genotype-dependent interaction between efavirenz and antituberculosis drug therapy through mechanism-based inactivation of CYP2A6. Antimicrobial Agents and Chemotherapy 2014; 58: 4145-4152.
759. Zhao Y, Cudkowicz ME, Shefner JM, Krivickas L, David WS, Vriesendorp F, Pestronk A, Caress JB, Katz J, Simpson E, Rosenfeld J, Pascuzzi R, Glass J, Rezania K, Harmatz JS, Schoenfeld D, Greenblatt DJ. Systemic pharmacokinetics and cerebrospinal fluid uptake of intravenous ceftriaxone in patients with amyotrophic lateral sclerosis. Journal of Clinical Pharmacology 2014; 54: 1180-1187.
760. Greenblatt DJ, Harmatz JS, Singh NN, Steinberg F, Roth T, Harris SC, Kapil RJ. Pharmacokinetics of zolpidem from sublingual zolpidem tartrate tablets in healthy elderly versus non-elderly subjects. Drugs and Aging 2014; 31: 731-736.
761. Cudkowicz ME, Titus S, Kearney M, Yu H, Sherman A, Schoenfeld D, Hayden D, Shui A, Brooks B, Conwit R, Felsenstein D, Greenblatt DJ, Keroack M, Kissel JT, Miller R, Rothstein JD, Simpson E, Tolkoﬀ-Rubin N, Zinman L, Shefner JM. Safety and efficacy of ceftriaxone for amyotrophic lateral sclerosis: a multi-stage, randomised, double-blind, placebo-controlled trial. Lancet Neurology 2014; 13: 1083-1091.
762. Pomara N, Lee SH, Bruno D, Silber T, Greenblatt DJ, Petkova E, Sidtis JJ. Adverse performance effects of acute lorazepam administration in elderly long-term users: Pharmacokinetic and clinical predictors. Prog Neuropsychopharmacol Biol Psychiatry 2015; 56: 129-135.
763. Zhao Y, Harmatz JS, Epstein CR, Nakagawa Y, Kurosaki C, Nakamura T, Kadota T, Giesing D, Court MH, Greenblatt DJ. Favipiravir inhibits acetaminophen sulfate formation but minimally affects systemic pharmacokinetics of acetaminophen. British Journal of Clinical Pharmacology 2015; 80: 1076-1085.
764. Greenblatt DJ, Harmatz JS. Ritonavir is the best alternative to ketoconazole as index inhibitor of Cytochrome P450-3A in drug-drug interaction studies. British Journal of Clinical Pharmacology 2015; 80: 342-350.
765. Ratti E, Berry JD, Greenblatt DJ, Loci L, Ellrodt AS, Shefner JM, Cudkowicz ME. Preclinical rodent toxicity studies for long term use of ceftriaxone. Toxicology Reports 2015; 2: 1396-1403.
766. Elliott KR, Harmatz JS, Zhao Y, Greenblatt DJ. Body size changes among National Collegiate Athletic Association New England Division III football players, 1956-2014: Comparison with age-matched population controls. Journal of Athletic Training 2016; 51: 373-381.

767. Qian Y, Sherbini A, Matin B, Castellot J, Greenblatt DJ. Inhibition of 2-methoxyestradiol glucuronidation by probenecid. Journal of Pharmacy and Pharmacology 2015; 67: 1585-1592.
768. Weiss MD, Macklin ED, Simmons Z, Knox AS, Greenblatt DJ, Atassi N, Graves M, Parziale N, Salameh JS, Quinn C, Brown RH, Distad BJ, Trivedi J, Shefner JM, Barohn RJ, Pestronk A, Swenson A, Cudkowicz ME, for the Mexilitine ALS Study Group. A randomized trial of mexiletine in ALS: Safety and effects on muscle cramps and progression. Neurology 2016; 86: 1474-1481.
769. Schaller SJ, Alam SM, Mao J, Zhao Y, Blobner M, Greenblatt DJ, Martyn JAJ. Pharmacokinetics cannot explain the increased effective dose requirement for morphine and midazolam in rats during their extended administration alone or in combination. Journal of Pharmacy and Pharmacology 2017; 69: 82-88.
770. Cao L, Greenblatt DJ, Kwara A. Inhibitory effects of selected antituberculosis drugs on common human hepatic Cytochrome P450 and UDP-glucuronosyltransferase enzymes. Drug Metabolism and Disposition 2017; 45: 1035-1043.
771. Court MH, Zhu Z, Masse G, Duan SX, James LP, Harmatz JS, Greenblatt DJ. Race, gender, and genetic polymorphism contribute to variability in acetaminophen pharmacokinetics, metabolism, and protein-adduct concentrations in healthy African-American and European-American volunteers. Journal of Pharmacology and Experimental Therapeutics 2017; 362: 431-440.
772. Cao L, Kwara A, Greenblatt DJ. Metabolic interactions between acetaminophen (paracetamol) and two flavonoids, luteolin and quercetin, through *in vitro* inhibition studies. Journal of Pharmacy and Pharmacology 2017; 69: 1762-1772.
773. Algeelani S, Alam N, Hossain MA, Mikus G, Greenblatt DJ. *In vitro* inhibition of human UGT isoforms by ritonavir and cobicistat. Xenobiotica 2018; 48: 764-769.
774. Hossain MA, Tran T, Chen T, Mikus G, Greenblatt DJ. Inhibition of human Cytochromes P450 *in vitro* by ritonavir and cobicistat. Journal of Pharmacy and Pharmacology 2017; 69: 1786-1793.
775. Alam N, Angeli MG, Greenblatt DJ. Mechanism of *in vitro* inhibition of UGT1A1 by paritaprevir. Journal of Pharmacy and Pharmacology 2017; 69: 1794-1801.
776. Johnson-Agbakwu C, Brown L, Yuan J, Kissling R, Greenblatt DJ. Effects of flibanserin on the pharmacokinetics of a combined ethinylestradiol/levonorgestrel oral contraceptive in healthy premenopausal women. Clinical Therapeutics 2018; 40: 64-73.

777. Greenblatt DJ, Patel M, Harmatz JS, Nicholson WT, Rubino CM, Chow CR. Impaired rivaroxaban clearance in mild renal insufficiency with verapamil coadministration: Potential implications for bleeding risk and dose selection. Journal of Clinical Pharmacology 2018; 58: 533-540.
778. Algeelani S, Alkhelb D, Greenblatt DJ. Inhibitory effects of sulfonylureas and non-steroidal anti-inflammatory drugs on in-vitro metabolism of canagliflozin in human liver microsomes. Biopharmaceutics and Drug Disposition 2018; 39: 135-142.
779. Greenblatt DJ, Harmatz JS, Chow CR. Vortioxetine disposition in obesity: Potential implications for patient safety. Journal of Clinical Psychopharmacology 2018; 38: 172-179.
780. Chow CR, Harmatz JS, Ryan MJ, Greenblatt DJ: Persistence of a posaconazole-mediated drug-drug interaction with ranolazine after cessation of posaconazole administration: Impact of obesity and implications for patient safety. Journal of Clinical Pharmacology 2018; 58: 1436-1422.
781. Greenblatt DJ, Harmatz JS, Ryan MJ, Chow CR: Sustained impairment of lurasidone clearance after discontinuation of posaconazole: Impact of obesity, and implications for patient safety. Journal of Clinical Psychopharmacology 2018; 38: 289-295.
782. Matin B, Sherbini AA, Alam N, Harmatz JS, Greenblatt DJ. Resveratrol glucuronidation in vitro: Potential implications of inhibition by probenecid. Journal of Pharmacy and Pharmacology 2019; 71: 371-378.
783. Kwara A, Yanf H, Antwi A, Enimil A, Gillani FS, Dompreeh A, Ortsin A, Opoku T, Bosomtwe D, Sarfo A, Wiesner L, Norman J, Alghamdi WA, Langaee T, Peloquin CA, Court MH, Greenblatt DJ: Effect of rifampin/isoniazid-containing antituberculosis therapy on efavirenz pharmacokinetics in HIV-infected children aged 3 to 14 years old. Antimicrobial Agents and Chemotherapy 2018 Dec 21;63(1). pii: e01657-18.
784. Nozari A, Johnson-Akeju S, Mirzakhani H, Eskandar E, Ma Z, Hossain MA, Wang Q, Greenblatt DJ, Martyn JAJ. Prolonged therapy with the anticonvulsant carbamazepine leads to increased plasma clearance of fentanyl. Journal of Pharmacology and Pharmacology 2019 (EPub).
785. Uchimura T, Nakamura DS, Link EM, Noguchi Y, Omura S, Sunazuka T, Greenblatt DJ, Zeng L. Erythromycin acts through the ghrelin receptor to attenuate inflammatory responses in chondrocytes and maintain joint integrity. Biochemical Pharmacology 2019; 165: 79-90.
786. Enimil A, Antwi S, Yang H, Dompreeh A, Alghamdi WA, Gillani FS, Ortsin A, Bosomtwe D, Opoku T, Norman J, Wiesner L, Langaee T, Peloquin CA, Court MH, Greenblatt DJ, Kwara A. Effect of first-line antituberculosis therapy on nevirapine pharmacokinetics in children younger than 3 years old. Antimicrobial Agents and Chemotherapy 2019.

REVIEWS AND BOOK CHAPTERS

- R1. Greenblatt DJ, Shader RI, DiMascio A: Extrapyramidal side effects of psychotropic drugs. Connecticut Medicine 33:197-201, 1969.
- R2. Greenblatt DJ, Shader RI: Acute poisoning with psychotropic drugs. In, Psychotropic Drug Side Effects: Clinical and Theoretical Perspectives, by RI Shader, A DiMascio and associates. Baltimore, Williams and Wilkins, 1970, pp. 214-234.
- R3. Greenblatt DJ, Shader RI, DiMascio A: Extrapyramidal effects. In, Psychotropic Drug Side Effects: Clinical and Theoretical Perspectives, by RI Shader, A DiMascio and associates. Baltimore, Williams and Wilkins, 1970, pp. 92-106.
- R4. Chien C-P, Greenblatt DJ, DiMascio A, Shader RI: Drug-induced extrapyramidal and neurological symptoms, In, Clinical Handbook of Psychopharmacology. Edited by A DiMascio, RI Shader. New York, Science House, 1970, pp. 229-243.
- R5. Greenblatt DJ, Shader RI: Adverse effects of LSD: a current perspective. Connecticut Medicine 34:895-902, 1970.
- R6. Greenblatt DJ: Toward the rational use of digoxin. Illinois Medical Journal 140:114-120, 1971.
- R7. Shader RI, Greenblatt DJ: Uses and toxicity of belladonna alkaloids and synthetic anticholinergics. Seminars in Psychiatry 3:449-476, 1971.
- R8. Greenblatt DJ, Shader RI: Digitalis toxicity. In, Psychiatric Complications of Medical Drugs. Edited by RI Shader. New York, Raven Press, 1972, pp. 25-47.
- R9. Shader RI, Greenblatt DJ: Belladonna alkaloids and synthetic anticholinergics: uses and toxicity. In, Psychiatric Complications of Medical Drugs. Edited by RI Shader. New York, Raven Press, 1972, pp. 103-147.
- R10. Miller RR, Greenblatt DJ: The clinical use of procainamide. American Journal of Hospital Pharmacy 31:889-891, 1974.
- R11. Greenblatt DJ, Miller RR: Rational use of psychotropic drugs. I. Hypnotics. American Journal of Hospital Pharmacy 31:990-995, 1974.
- R12. Greenblatt DJ, Shader RI: Rational use of psychotropic drugs. II. Antianxiety agents. American Journal of Hospital Pharmacy 31:1077-1080, 1974.
- R13. Greenblatt DJ, Shader RI: Rational use of psychotropic drugs. III. Major tranquilizers. American Journal of Hospital Pharmacy 31:1226-1231, 1974.
- R14. Greenblatt DJ, Shader RI: Rational use of psychotropic drugs. IV. Antidepressants. American Journal of Hospital Pharmacy 32:59-64, 1975.

- R15. Greenblatt DJ, Shader RI: Psychotropic drugs, medical disease, and other medical therapies. In, Seminars in Psychiatry: Drugs in Combination with Other Therapies. Edited by M Greenblatt. New York, Grune and Stratton, 1975, pp. 83-99.
- R16. Greenblatt DJ, Shader RI: Urgent pharmacotherapy of drug abuse. In, Current Psychiatric Therapies, vol. 15. Edited by JM Masserman. New York, Grune and Stratton, 1975, pp. 171-180.
- R17. Greenblatt DJ, Shader RI: Blood levels of benzodiazepines: applications in medicine and toxicology. In, Clinical Pharmacology of Psychoactive Drugs. Edited by EM Sellers. Toronto, Addiction Research Foundation of Ontario, 1975, pp. 87-104.
- R18. Duhme DW, Greenblatt DJ, Miller RR: Pharmacotherapy of essential hypertension. American Journal of Hospital Pharmacy 32:508-516, 1975.
- R19. Greenblatt DJ, Shader RI: Psychotropic drugs in the general hospital. In, Manual of Psychiatric Therapeutics. Edited by RI Shader. Boston, Little Brown and Company, 1975, pp. 1-26.
- R20. Shader RI, Greenblatt DJ: The psychopharmacological treatment of anxiety states. In, Manual of Psychiatric Therapeutics. Edited by RI Shader. Boston, Little Brown and Company, 1975, pp. 27-38.
- R21. Greenblatt DJ, Shader RI: Bad trips. In, Manual of Psychiatric Therapeutics. Edited by RI Shader. Boston, Little Brown and Company, 1975, pp. 185-194.
- R22. Greenblatt DJ, Shader RI: Treatment of the alcohol withdrawal syndrome. In, Manual of Psychiatric Therapeutics. Edited by RI Shader. Boston, Little Brown and Company, 1975, pp. 211-236.
- R23. Greenblatt DJ, Shader RI: Psychotropic drug overdosage. In, Manual of Psychiatric Therapeutics. Edited by RI Shader. Boston, Little Brown and Company, 1975, pp. 237-268.
- R24. Greenblatt DJ, Shader RI: Drug interactions in psychopharmacology. In, Manual of Psychiatric Therapeutics. Edited by RI Shader. Boston, Little Brown and Company, 1975, pp. 269-280.
- R25. Greenblatt DJ, Shader RI, Koch-Weser J, Franke K: Clinical pharmacokinetics of chlordiazepoxide. In, Pharmacokinetics of Psychoactive Drugs: Blood Levels and Clinical Response. Edited by LA Gottschalk, S Merlis. Flushing, New York, Spectrum Publications, 1976, PP. 127-139.
- R26. Greenblatt DJ, Smith TW: Digitalis: clinical implications of new facts about an old drug. Postgraduate Medicine 54:134-139, (May) 1976.
- R27. Greenblatt DJ, Gross PL, Bolognini V: Pharmacotherapy of cardiopulmonary arrest. American Journal of Hospital Pharmacy 33:579-583, 1976.
- R28. Shader RI, Good MI, Greenblatt DJ: Anxiety states and beta-adrenergic blockade. In, Progress in Psychiatric Drug Treatment, vol. 2. Edited

- by DF Klein, R Gittelman-Klein. New York, Brunner/Mazel, Publishers, 1976, pp. 509-528.
- R29. Greenblatt DJ, Shader RI, Koch-Weser J: The psychopharmacology of beta adrenergic blockade: pharmacokinetic and epidemiologic aspects. In, Neuro-Psychiatric Effects of Adrenergic Beta-Receptor Blocking Agents. Edited by C Carlson, J Engel, L Hansson. München, Urban & Schwarzenberg, 1976, pp. 6-13.
- R30. Greenblatt DJ, Shader RI: Psychopharmacokinetics. In, Clinical Pharmacy and Clinical Pharmacology. Edited by WA Gouveia, G Tognoni, E van der Kleijn. Amsterdam, North-Holland Publishing Company, 1976, pp. 3-15.
- R31. Greenblatt DJ, Shader RI: Nonprescription psychotropic drugs. In, Psychopharmacology in the Practice of Medicine. Edited by ME Jarvik. New York, Appleton-Century-Crofts, 1977, pp. 345-357.
- R32. Greenblatt DJ, Shader RI: Evaluation of new hypnotic drugs. In, Drugs Under Experimental and Clinical Research 1:417-422, 1977.
- R33. Greenblatt DJ, Koch-Weser J: Clinical toxicity of propranolol and practolol: a report from the Boston Collaborative Drug Surveillance Program. In, Cardiovascular Drugs, Vol. 2:  $\beta$ -Adrenoceptor Blocking Drugs. Edited by GS Avery. New York, ADIS Press Australasia Pty Ltd. 1977, pp. 179-195.
- R34. Greenblatt DJ, Shader RI: Pharmacotherapy of anxiety with benzodiazepines and  $\beta$ -adrenergic blockers. In, Psychopharmacology: A Generation of Progress. Edited by MA Lipton, A DiMascio, KF Killam. New York, Raven Press, 1978, pp. 1381-1389.
- R35. Greenblatt DJ: Drug therapy of insomnia. In, Clinical Psychopharmacology. Edited by JG Bernstein. Littleton, Massachusetts, PSG Publishing Company, 1978, pp. 27-39.
- R36. Allen MD, Greenblatt DJ: Hypnotics and sedatives. In, Side Effects of Drugs Annual 2. Edited by MNG Dukes. Amsterdam, Excerpta Medica, 1978, pp. 36-44.
- R37. Shader RI, Weinberger DR, Greenblatt DJ: Problems with drug interactions in treating brain disorders. Psychiatric Clinics of North America 1:51-69, 1978.
- R38. Greenblatt DJ: International patterns of clinical use and toxicity of digitalis glycosides: a report from the Boston Collaborative Drug Surveillance Program. In, Cardiac Glycosides, Part II, International Boehringer Mannheim Symposia. Edited by G Bodem, HJ Dengler, Berlin, Springer-Verlag, 1978, pp. 326-334.
- R39. Greenblatt DJ, Pfeifer JH, Koch-Weser J: Clinical Toxicity of beta-adrenergic blocking drugs. In, Beta-Adrenergic Blockade: A New Era in Cardiovascular Medicine. Edited by E Braunwald. Amsterdam, Excerpta Medica, 1978, pp. 131-136.
- R40. Allen MD, Greenblatt DJ: Hypnotics and sedatives. In, Side Effects of Drugs Annual 3. Edited by MNG Dukes. Amsterdam, Excerpta Medica, 1979, pp. 29-38.

- R41. Shader RI, Greenblatt DJ: Benzodiazepines: some aspects of their clinical pharmacology. In, Drug Concentrations in Neuropsychiatry (Ciba Foundation Symposium 74). Edited by R Porter, J Rivers, J Whelon. Amsterdam, Excerpta Medica, 1980.
- R42. Greenblatt DJ, Shader RI: Pharmacokinetic aspects of anxiolytic drug therapy. Canadian Journal of Neurological Sciences 7:269-270, 1980.
- R43. Shader RI, Greenblatt DJ: The use of benzodiazepines in clinical practice. British Journal of Clinical Pharmacology 11:5S-9S, 1981.
- R44. Greenblatt DJ, Shader RI, Divoll M, Harmatz JS: Benzodiazepines: a summary of pharmacokinetic properties. British Journal of Clinical Pharmacology 11:11S-16S, 1981.
- R45. Ameer B, Greenblatt DJ: Lorazepam: a review of its clinical pharmacological properties and therapeutic uses. Drugs 21:161-200, 1981.
- R46. Greenblatt DJ, Shader RI: Benzodiazepines: analytic techniques. In, Therapeutic Drug Monitoring. Edited by A Richens, V Marks. Edinburgh, Churchill Livingstone, 1981, pp. 272-280.
- R47. Greenblatt DJ, Shader RI: Pharmacokinetics in old age: principles and problems of assessment. In, Clinical Pharmacology and the Aged Patient. Edited by LF Jarvik, DJ Greenblatt, D Harman. New York, Raven Press, 1981, pp. 27-46.
- R48. Greenblatt DJ, Shader RI: Benzodiazepine kinetics in the elderly. In, Clinical Pharmacology in Psychiatry. Edited by E Usdin, et al. New York, Elsevier, 1981, pp. 173-181.
- R49. Greenblatt DJ, Divoll M, Abernethy DR, Shader RI: Benzodiazepine hypnotics: kinetic and therapeutic options. Sleep 5:S18-S27, 1982.
- R50. Shader RI, Greenblatt DJ: Management of anxiety in the elderly: the balance between therapeutic and adverse effects. Journal of Clinical Psychiatry 43(No. 9, Sect. 2):8-16, 1982.
- R51. Greenblatt DJ: Analysis of benzodiazepines by electron-capture gas-liquid chromatography. In, Methodology for Analytical Toxicology, Vol II. Edited by I Sunshine, PI Jatlow. Boca Raton, Florida, CRC Press, 1982, pp. 19-24.
- R52. Greenblatt DJ, Divoll M, Abernethy DR, Shader RI: Physiologic changes in old age: relation to altered drug disposition. Journal of the American Geriatrics Society 30 (November supplement): S6-S10, 1982.
- R53. Greenblatt DJ, Shader RI: New anxiolytics: are they really new? Psychopharmacology Bulletin 18:58-61, (Oct) 1982.
- R54. Greenblatt DJ, Divoll M: Benzodiazepines in the elderly. In, Treatment of Psychopathology in the Aging. Edited by C Eisdorfer, WE Fann. New York, Springer Publishing Co., 1982, p. 29-42.
- R55. Greenblatt DJ, Divoll M: Diazepam versus lorazepam: relationship of drug distribution to duration of clinical action. In, Status Epilepticus: Mechanisms of Brain Damage and Treatment (Advances in

- Neurology, Volume 34). Edited by AV Delgado-Escueta, CG Wasterlain, DM Treman, RI Porter. New York, Raven Press, 1983, p. 487-491.
- R56. Greenblatt DJ, Divoll M, Abernethy DR, Ochs HR, Shader RI: Benzodiazepine kinetics: implications for therapeutics and pharmacogeriatrics. Drug Metabolism Reviews 14:251-292, 1983.
- R57. Greenblatt DJ, Shader RI, Abernethy DR, Ochs HR, Divoll M, Sellers EM: Benzodiazepines and the challenge of pharmacokinetic taxonomy. In, Pharmacology of Benzodiazepines. Edited by E Usdin, P Skolnick, JF Tallman, D Greenblatt, SM Paul. London, MacMillan Press, 1982, p. 257-269.
- R58. Sellers EM, Naranjo CA, Khouw V, Greenblatt DJ: Binding of benzodiazepines to plasma proteins. In, Pharmacology of Benzodiazepines. Edited by E Usdin, P Skolnick, JF Tallman, D Greenblatt, SM Paul. London, MacMillan Press, 1982, p. 271-284.
- R59. Greenblatt DJ, Abernethy DR, Divoll M, Harmatz JS, Shader RI: Pharmacokinetic properties of benzodiazepine hypnotics. Journal of Clinical Psychopharmacology 3:129-132, 1983.
- R60. Greenblatt DJ, Divoll M, Abernethy DR, Shader RI: Clinical pharmacokinetics of alprazolam, a triazolo benzodiazepine. In, The Affective Disorders. Edited by JM Davis, JW Maas. Washington, D.C., American Psychiatric Press, 1983, p. 367-378.
- R61. Abernethy DR, Greenblatt DJ, Shader RI: Benzodiazepines in clinical practice. In, Recent Advances in Therapeutics. Edited by JZ Yetiv, JR Bianchine. New York, Grune and Stratton, 1983, p. 143-153.
- R62. Abernethy DR, Greenblatt DJ, Divoll M, Shader RI: Pharmacokinetics of alprazolam. Journal of Clinical Psychiatry 44(No. 8, Sect. 2):45-47, 1983.
- R63. Coffey B, Shader RI, Greenblatt DJ: Pharmacokinetics of benzodiazepines and psychostimulants in children. Journal of Clinical Psychopharmacology 3:217-225, 1983.
- R64. Shader RI, Greenblatt DJ: Some current treatment options for symptoms of anxiety. Journal of Clinical Psychiatry 44 (No.11, Sect.2):21-29, 1983.
- R65. Greenblatt DJ, Abernethy DR, Divoll M, Ochs HR, Shader RI: Antipyretic analgesic drugs as models for studies of drug disposition in old age. American Journal of Medicine 75 (Suppl. 5A):127-132, 1983.
- R66. Abernethy DR, Greenblatt DJ, Ochs HR, Shader RI: Benzodiazepine drug-drug interactions commonly occurring in clinical practice. Current Medical Research and Opinion 8 (supplement 4) :80-93, 1984.
- R67. Browne TR, Van Langenhove A, Costello CE, Biemann K, Greenblatt DJ: Applications of stable isotope methods to studying the clinical pharmacology of antiepileptic drugs in newborns, infants, children, and adolescents. Therapeutic Drug Monitoring 6:3-9, 1984.



- R68. Browne TR, Van Langehove A, Costello CE, Biemann K, Evans JE, Szabo GK, Greenblatt DJ: Applications of stable isotope tracer methods to human drug interaction studies. In, Synthesis and Applications of Isotopically Labeled Compounds. Edited by WP Duncan, AB Susan. Amsterdam, Elsevier, 1983, p. 343-348.
- R69. Greenblatt DJ, Divoll M, Abernethy DR, Ochs HR, Shader RI: Benzodiazepine pharmacokinetics: an overview. In, Antianxiety Agents: Drugs in Psychiatry, (Vol. 2). Edited by GD Burrows, TR Norman, B Davies. Amsterdam, Elsevier, 1984, p. 79-92.
- R70. Greenblatt DJ, Arendt RM, Shader RI: Pharmacodynamics of benzodiazepines after single oral doses: kinetic and physicochemical correlates. In, Sleep, Benzodiazepines, and Performance. Edited by I Hindmarch, H Ott, T Roth. Berlin, Springer-Verlag, 1984, p 92-97.
- R71. Greenblatt DJ, Divoll M, Abernethy DR, Locniskar A, Shader RI: Pharmacokinetics of benzodiazepine hypnotics. Pharmacology 27(Supplement 2): 70-75, 1983.
- R72. Greenblatt DJ, Shader RI, Abernethy DR: Anxiolytic drug therapy in patients with medical diseases: clinical importance of pharmacokinetic drug interactions. Psychopharmacology Bulletin 20:645-648, 1984.
- R73. Abernethy DR, Arendt RM, Greenblatt DJ: Pharmacologic properties of acebutolol: relationship of hydrophilicity to central nervous system penetration. American Heart Journal 109(No.5, Part 2):1120-1125, 1985.
- R74. Greenblatt DJ, Abernethy DR, Shader RI: Pharmacokinetic risk factors in the elderly. In, Geriatric Drug Use: Clinical and Social Perspectives. Edited by SR Moore, TW Teal. New York, Pergammon Press, 1985, p. 153-159.
- R75. Greenblatt DJ: Elimination half-life of drugs: value and limitations. Annual Review of Medicine 36:421-427, 1985.
- R76. Greenblatt DJ, Shader RI: Clinical pharmacokinetics of the benzodiazepines. In, The Benzodiazepines: Current Standards for Medical Practice. Edited by DE Smith, DR Wesson. Lancaster, UK, MTP Press, 1985, p. 43-58.
- R77. Greenblatt DJ, Shader RI: Short half-life benzodiazepines. Rational Drug Therapy 18: (April) 1984.
- R78. Greenblatt DJ, Scavone JM: Pharmacokinetics of oxaprozin and other nonsteroidal antiinflammatory agents. Seminars in Arthritis and Rheumatism 15(suppl 2):18-26, 1986.
- R79. Arana GW, Ornstein ML, Kanter F, Friedman HL, Greenblatt DJ, Shader RI: The use of benzodiazepines for psychotic disorders: a literature review and preliminary clinical findings. Psychopharmacology Bulletin 22:77-87, 1986.
- R80. Greenblatt DJ, Abernethy DR, Shader RI: Pharmacokinetic aspects of drug therapy in the elderly. Therapeutic Drug Monitoring 8:249-255, 1986.
- R81. Greenblatt DJ, Shader RI: Long-term administration of benzodiazepines: pharmacokinetic versus pharmacodynamic tolerance. Psychopharmacology Bulletin 22:416-423, 1986.

- R82. Browne TR, Evans JE, Kasdon DL, Szabo GK, Evans BA, Greenblatt DJ: Distribution. Journal of Clinical Pharmacology 26:425-426, 1986.
- R83. Browne TR, Greenblatt DJ, Evans JE, Szabo GK, Evans BA, Schumacher GE: Pharmacokinetics: dose-dependent changes. Journal of Clinical Pharmacology 26:463-468, 1986.
- R84. Miller LG, Greenblatt DJ, Shader RI: Benzodiazepine receptor binding: influence of physiologic and pharmacologic factors. Biopharmaceutics and Drug Disposition 8:103-114, 1987.
- R85. Shader RI, Greenblatt DJ: Some practical approaches to the understanding and treatment of symptoms of anxiety and stress. In, American Handbook of Psychiatry, 2nd edition. Edited by PA Berger, HKH Brodie. New York, Basic Books, 1986, p 597-619.
- R86. Greenblatt DJ, Friedman HL, Shader RI: Correlating pharmacokinetics and pharmacodynamics of benzodiazepines: problems and assumptions. In, Clinical Pharmacology in Psychiatry. Selectivity in Psychotropic Drug Action--Promises or Problems. Edited by SG Dahl, LF Gram, SM Paul. Springer-Verlag, Berlin/Heidelberg, 1987, p 62-71.
- R87. Greenblatt DJ: Drug disposition and pharmacologic effect: relation to drug therapy in the elderly. In, Clinical Pharmacology in the Aged. Edited by N Rietbrock, BG Woodcock. F Vieweg and Son, Braunschweig-Wiesbaden, W Germany, 1987, p 33-40.
- R88. Divoll MK, Greenblatt DJ: Drug interactions and adverse drug reactions in the elderly. In, Clinical Pharmacology in the Elderly. Edited by CG Swift. New York, Marcel Dekker, 1987, p 119-145.
- R89. Greenblatt DJ, Shader RI: Pharmacokinetics of antianxiety agents. In, Psychopharmacology: The Third Generation of Progress. Edited by HY Meltzer. New York, Raven Press, 1987, p 1377-1386.
- R90. Greenblatt DJ, Miller LG, Shader RI. Clonazepam pharmacokinetics, brain uptake, and receptor interactions. Journal of Clinical Psychiatry 48(No. 10, Supp.):4-9, 1987.
- R91. Deutsch SI, Miller LG, Weizman R, Weizman A, Vocci FJ, Greenblatt DJ, Paul SM. Characterization of specific [<sup>3</sup>H]-Ro15-1788 binding in vivo. Psychopharmacology Bulletin 23:469-472, 1987.
- R92. Greenblatt DJ, Shader RI, Abernethy DR. The psychopharmacokinetics of old age. In, Perspectives in Psychopharmacology: A Collection of Papers in Honor of Earl Usdin. Edited by J.D. Barchas, W.E. Bunney. New York, Alan R. Liss, 1988, p 605-612.
- R93. Friedman H, Greenblatt DJ. Rational use of serum drug concentration monitoring. In, Handbook of Clinical Psychopharmacology, 2nd Edition. Edited by J.P. Tupin, R.I. Shader, D.S. Harnett. Northvale, N.J., Jason Aronson, Inc., 1988, p 425-437.
- R94. Pomara N, Deptula D, Medel M, Block RI, Greenblatt DJ. Effects of diazepam on recall memory: Relationship to aging, dose and duration of treatment. Psychopharmacology Bulletin 25:144-148, 1989.

- R95. Barnhill JG, Greenblatt DJ. HPLC determination of beta-adrenergic blockers in biological fluids. In, Determination of Beta-Blockers in Biological Materials. Edited by V. Marko. Amsterdam, Elsevier Science publishers, 1989, p 159-187.
- R96. Greenblatt DJ: Disposition of cardiovascular drugs in the elderly. Medical Clinics of North America 73:487-494, 1989.
- R97. Browne TR, Szabo GK, Schumacher GE, Evans JE, Evans BE, Greenblatt DJ: Studies of non-linear pharmacokinetics with stable isotope labeled phenytoin. In, Synthesis and Applications of Isotopically Labelled Compounds. Edited by T.A. Baillie, J.R. Jones. Amsterdam, Elsevier, 1989, p 157-162.
- R98. Greenblatt DJ, Shader RI, Harmatz JS: Implications of altered drug disposition in the elderly: studies of benzodiazepines. Journal of Clinical Pharmacology 29:866-872, 1989.
- R99. Browne TR, Greenblatt DJ, Schumacher GE, Szabo GK, Evans JE, Evans BA, Perchalski RJ, Pylilo RJ: Comparison of method for determination of pharmacokinetic drug interactions and proposals for new methods. In, Antiepileptic Drug Interactions. Edited by W.H. Pitlick. New York, Demos Publications, 1989, p 3-25.
- R100. Greenblatt DJ, Miller LG, Shader RI: Benzodiazepine discontinuation syndromes. Journal of Psychiatric Research 24 (supp 2): 73-79, 1990.
- R101. Greenblatt DJ, Miller LG, Shader RI: Neurochemical and pharmacokinetic correlates of the clinical action of benzodiazepine hypnotic drugs. American Journal of Medicine 88(suppl. 3A):18s-24s,1990.
- R102. Greenblatt DJ, Shader RI: Benzodiazepines in the elderly: pharmacokinetics and drug sensitivity. In, Anxiety in the Elderly: Treatment and Research. Edited by C. Salzman, B.D. Lebowitz. New York, Springer, 1990, p. 131-145.
- R103. Cowley DS, Roy-Byrne PP, Greenblatt DJ: Benzodiazepines: pharmacokinetics and pharmacodynamics. In, Benzodiazepines in Clinical Practice: Risks and Benefits. Edited by P.P. Roy-Byrne, D.S. Cowley. Washington DC, American Psychiatric Association Press, 1991, p. 19-32.
- R104. Miller LG, Greenblatt DJ, Lopez F, Schatzki A, Heller J, Lumpkin M, Shader RI: Chronic benzodiazepine administration: Effects *in vivo* and *in vitro*. In, GABA and Benzodiazepine Receptor Subtypes. Edited by G. Biggio, E. Costa. New York, Raven Press 1990, p. 167-175.
- R105. Greenblatt DJ: Benzodiazepine hypnotics: sorting the pharmacokinetic facts. Journal of Clinical Psychiatry 52 (No. 9, Supp):4-10, 1991.
- R106. Miller LG, Greenblatt DJ: Neurochemistry of the benzodiazepines. In, Drugs of Abuse and Neurobiology. Edited by R.R. Watson. Boca Raton, Florida, CRC Press, 1992, p. 175-182.
- R107. Greenblatt DJ: Pharmacology of benzodiazepine hypnotics. Journal of Clinical Psychiatry 53 (No. 6, Supp):7-13, 1992.
- R108. Greenblatt DJ: Presystemic extraction: mechanisms and consequences. Journal of Clinical Pharmacology 33:650-656, 1993.

- R109. Greenblatt DJ: The benzodiazepines: kinetic-dynamic relationships. In, Integration of Pharmacokinetics, Pharmacodynamics, and Toxicokinetics in Rational Drug Development. Edited by A. Yacobi, J.P. Skelly, V. P. Shah, L.Z. Benet. New York, Plenum Press, 1993, p. 217-223.
- R110. Greenblatt DJ: Basic pharmacokinetic principles and their application to psychotropic drugs. Journal of Clinical Psychiatry 54[9, suppl]:8-13, 1993.
- R111. Greenblatt DJ, von Moltke LL, Harmatz JS, Ciraulo DA, Shader RI: Alprazolam pharmacokinetics, metabolism, and plasma levels: clinical implications. Journal of Clinical Psychiatry 54[10, suppl]:4-11, 1993.
- R112. Greenblatt DJ: Sedation: intravenous benzodiazepines in critical care medicine. In, The Pharmacologic Approach to the Critically Ill Patient. Edited by B. Chernow. Baltimore, Williams and Wilkins, 1994, p. 321-326.
- R113. Ciraulo DA, Greenblatt DJ. Psychoactive substance use disorders: sedatives, hypnotics, and anxiolytics. In, Comprehensive Textbook of Psychiatry, 6th Edition. Edited by HI Kaplan, BJ Sadock. Baltimore, Williams and Wilkins, 1995, p.872-887.
- R114. Greenblatt DJ. Pharmacokinetics. In, Encyclopedia of Drugs and Alcohol. Edited by JH Jaffe. New York, MacMillan, 1995 (in press).
- R115. Greenblatt DJ. Principles of pharmacokinetics and pharmacodynamics. In, The American Psychiatric Press Textbook of Psychopharmacology. Edited by CB Nemeroff, AF Schatzberg. Washington, American Psychiatric Press, 1995, P. 125-136.
- R116. Greenblatt DJ, Abernethy DR, Chaikin P. Pharmacologic considerations. In, Clinical Evaluation of Psychotropic Drugs. Edited by RF Prien, DS Robinson. New York, Raven Press, 1994, p. 123-138.
- R117. von Moltke LL, Greenblatt DJ, Harmatz JS, Shader RI. Psychotropic drug metabolism in old age: principles and problems of assessment. In, Psychopharmacology: The Fourth Generation of Progress. Edited by FE Bloom, DJ Kupfer. New York, Raven Press, 1995, p.1461-1469.
- R118. Greenblatt DJ, Harmatz JS, von Moltke LL, Shader RI. Pharmacokinetics and pharmacodynamics. In, Psychopharmacology: The Fourth Generation of Progress. Edited by F. E. Bloom, D. J. Kupfer. New York, Raven Press, 1995, p.849-858.
- R119. Shader RI, Greenblatt DJ. The pharmacotherapy of acute anxiety: a mini-update. In, Psychopharmacology: The Fourth Generation of Progress. Edited by F. E. Bloom, D. J. Kupfer. New York, Raven Press, 1995, p.1341-1348.
- R120. Miller LG, Greenblatt DJ. Benzodiazepine discontinuation syndromes: clinical and experimental aspects. In, Pharmacological Aspects of Drug Dependence. Edited by C. R. Schuster, M. J. Kuhar. Berlin, Springer-Verlag, 1996, p.263-269.
- R121. von Moltke LL, Abernethy DR, Greenblatt DJ. Kinetics and dynamics of psychotropic drugs in the elderly. In, Geriatric Clinical

Psychopharmacology, 3rd Edition. Edited by C. Salzman. Baltimore, Williams and Wilkins, 1998, p.70-93.

- R122. Greenblatt DJ, von Moltke LL. Can *in vitro* models predict drug interactions *in vivo*? A review of methods, problems and successes. In, Drug-Drug Interactions: Analyzing In Vitro-In Vivo Correlations. Edited by W. Hori. Southboro, MA, International Business Communications, 1997, p.2.2.1-2.2.28.
- R123. Greenblatt DJ, von Moltke LL, Shader RI. Pharmacokinetics of psychotropic drugs. In, Geriatric Psychopharmacology. Edited by J. C. Nelson. New York, Marcel Dekker, 1998, p.27-41.
- R124. Greenblatt DJ, von Moltke LL, Harmatz JS, Shader RI. Drug interactions with newer antidepressants: role of human Cytochromes P450. Journal of Clinical Psychiatry 59 [Suppl. 15]: 19-27, 1998.
- R125. Chuck SK, Rodvold KA, von Moltke LL, Greenblatt DJ and Shader RI. Pharmacokinetics of protease inhibitors and drug interactions with psychoactive drugs. In, Psychosocial and Public Health Impacts of New HIV Therapies. Edited by D. G. Ostrow and J. A. Kelly. New York, Kluwer/Plenum, 1999, p. 33-60.
- R126. Schmider J, von Moltke LL, Shader RI, Harmatz JS and Greenblatt DJ. Extrapolating *in vitro* data on drug metabolism to *in vivo* pharmacokinetics: evaluation of the pharmacokinetic interaction between amitriptyline and fluoxetine. Drug Metabolism Reviews 31:545-560, 1999.
- R127. Greenblatt DJ, von Moltke LL, Harmatz JS and Shader RI. Human cytochromes and some newer antidepressants: kinetics, metabolism, and drug interactions. Journal of Clinical Psychopharmacology 19 [Suppl. 1]:23S-35S, 1999.
- R128. Venkatakrishnan K, von Moltke LL and Greenblatt DJ. Effects of the antifungal agents on oxidative drug metabolism in humans: clinical relevance. Clinical Pharmacokinetics 38:111-180, 2000.
- R129. von Moltke LL and Greenblatt DJ. Pharmacokinetics of psychotropic drugs in the elderly. Annual Review of Gerontology and Geriatrics 19:53-71, 1999.
- R130. Greenblatt DJ, von Moltke LL. Sedative-hypnotic and anxiolytic agents. In, Metabolic Drug Interactions. Edited by R.H. Levy, K.E. Thummel, W.F. Trager, P.D. Hansten, M. Eichelbaum. Philadelphia, Lippincott, Williams and Wilkins, 2000, p. 259-270.
- R131. Venkatakrishnan K, von Moltke LL and Greenblatt DJ. Human drug metabolism and the cytochromes P450: application and relevance of *in vitro* models. Journal of Clinical Pharmacology 41:1149-1179, 2001.
- R132. Greenblatt DJ, von Moltke LL. Drug-drug interactions: clinical perspective. In, Drug-Drug Interactions. Edited by A.D. Rodrigues. New York, Marcel Dekker, 2002, p. 565-584.
- R133. von Moltke LL, Greenblatt DJ, Romach MK and Sellers EM. Cognitive toxicity of drugs used in the elderly. Dialogues in Clinical Neuroscience 3:181-190, 2001.

- R134. Greenblatt DJ, von Moltke LL, Harmatz JS and Shader RI. Pharmacokinetics, pharmacodynamics, and drug disposition. In, Neuropsychopharmacology: The Fifth Generation of Progress. Edited by K.L. Davis, D. Charney, J.T. Coyle and C. Nemeroff. Philadelphia, Lippincott Williams and Wilkins, 2002, p.507-524.
- R135. Hesse LM, von Moltke LL, Greenblatt DJ. Clinically important drug interactions with zopiclone, zolpidem, and zaleplon. CNS Drugs 17:513-532, 2003.
- R136. Venkatakrishnan K, von Moltke LL, Obach RS and Greenblatt DJ. Drug metabolism and drug interactions: application and clinical value of in vitro models. Curr Drug Metab 4:423-459, 2003.
- R137. von Moltke LL and Greenblatt DJ. Medication dependence and anxiety. Dialogues in Clinical Neuroscience 5: 237-245, 2003.
- R138. von Moltke LL, Abernethy DR and Greenblatt DJ. Kinetics and dynamics of psychotropic drugs in the elderly. In, Clinical Geriatric Psychopharmacology, 4<sup>th</sup> Edition. Edited by C. Salzman. Philadelphia. Lippincott Williams and Wilkins, 2005, p.87-114.
- R139. Greenblatt DJ and von Moltke LL. Interaction of warfarin with drugs, natural substances, and foods. Journal of Clinical Pharmacology 2005;45:127-132.
- R140. Cotreau MM, von Moltke LL and Greenblatt DJ. The influence of age and sex on the clearance of cytochrome P450 3A substrates. Clinical Pharmacokinetics 2005;44:33-60.
- R141. Greenblatt DJ, von Moltke LL. Pharmacokinetics and drug interactions. In, Comprehensive Textbook of Psychiatry, 8th Edition. Edited by BJ Sadock, VA Sadock. Philadelphia, Lippincott Williams & Williams, 2005, p. 2699-2706.
- R142. Greenblatt DJ, Leigh-Pemberton RA and von Moltke LL. In vitro interactions of water-soluble garlic components with human Cytochromes P450. J Nutr 2006;136:806S-809S.
- R143. Leigh-Pemberton RA, von Moltke LL and Greenblatt DJ. Psychopharmacology in the elderly person with cardiovascular disease. Annals of Long Term Care 2006;14(No.5):34-45.
- R144. Greenblatt DJ. Pharmacokinetic determinants of hypnotic drug action: The art and science of controlling release. Sleep Med 2006;7 Suppl 1:S10-14.
- R145. Greenblatt DJ and von Moltke LL (2008). Drug-Drug Interactions: Clinical perspectives. In, Drug-Drug Interactions, 2nd Edition. Edited by A. D. Rodrigues. New York, Informa Healthcare: p. 643-664.
- R146. Farkas D, Shader RI, von Moltke LL and Greenblatt DJ (2008). Mechanisms and consequences of drug-drug interactions. In, Preclinical Development Handbook: ADME and Biopharmaceutical Properties. Edited by S. C. Gad. Philadelphia, Wiley-Interscience: p. 879-917.
- R147. Greenblatt DJ, He P, von Moltke LL and Court MH (2008). The CYP3 family. In, Cytochrome P450: Role in the Metabolism and Toxicology of

Drugs and Other Xenobiotics. Edited by C. Ioannides. Cambridge (UK), Royal Society of Chemistry: p. 354-383.

- R148. Volak LP, Greenblatt DJ and von Moltke LL (2008). In vitro approaches to anticipating clinical drug interactions. In, Drug-Drug Interactions in Pharmaceutical Development. Edited by A. P. Li. Philadelphia, Wiley-Interscience: p. 31-74.
- R149. Farkas D, Greenblatt DJ. Influence of fruit juices on drug disposition: Discrepancies between in vitro and clinical studies. Expert Opinion on Drug Metabolism and Toxicology 2008; 4:381-393.
- R150. Rhee MS and Greenblatt DJ. Pharmacologic consideration for the use of antiretroviral agents in the elderly. Journal of Clinical Pharmacology 2008;48:1212-1225.
- R151. Greenblatt DJ and von Moltke LL. Gender has a small but statistically significant effect on clearance of CYP3A substrate drugs. J Clin Pharmacol 2008;48:1350-1355.
- R152. Greenblatt DJ. Sleep and geriatric psychopharmacology. In, Sleep Disorders: Diagnosis and Therapeutics. Edited by S.R. Pandi-Perumal, J. C. Verster, J. M. Monti, M. Lader, S. Z. Langer. London, Informa Healthcare, 2008, p. 163-173.
- R153. Hanley MJ, Abernethy DR and Greenblatt DJ. Effect of obesity on the pharmacokinetics of drugs in humans. Clinical Pharmacokinetics 2010;49:71-87.
- R154. Greenblatt DJ. Analysis of drug interactions involving fruit beverages and organic anion-transporting polypeptides. Journal of Clinical Pharmacology 2009;49:1403-1407.
- R155. Greenblatt DJ and von Moltke LL (2010). Clinical studies of drug-drug interactions: design and interpretation. In, Enzyme- and Transporter-Based Drug-Drug Interactions: Progress and Future Challenges. Edited by K. S. Pang, A. D. Rodrigues and R. M. Peter. New York, Springer: p. 625-649.
- R156. von Moltke LL and Greenblatt DJ (2010). Clinical drug interactions due to metabolic inhibition: Prediction, assessment, and interpretation. In, Enzyme Inhibition in Drug Discovery and Development. Edited by C. Lu and A. P. Li. Hoboken NJ, John Wiley & Sons: p 533-547.
- R157. Greenblatt DJ, Venkatakrishnan K, Harmatz JS, Parent SJ and von Moltke LL. Sources of variability in ketoconazole inhibition of human Cytochrome P450-3A in vitro. Xenobiotica 2010; 40: 713-720.
- R158. Greenblatt DJ (2010). Pharmacokinetic determinants of the clinical effects of benzodiazepine agonist hypnotics. In, GABA and Sleep. Edited

- by J. M. Monti, S. R. Pandi-Perumal, H. Möhler. Springer, Basel: p. 95-118.
- R159. Greenblatt DJ. Update on drug interactions with grapefruit juice: an evidence-based review. Pharmacy Times 2010; 76 (Jan): 95-104.
- R160. Hanley MJ, Cancalon P, Widmer WW and Greenblatt DJ. The effect of grapefruit juice on drug disposition. Expert Opinion on Drug Metabolism and Toxicology 2011; 7: 267-286.
- R161. Greenblatt DJ (2011). Introduction to drug-drug interactions. In, Drug Interactions in Infectious Diseases, 3<sup>rd</sup> Edition. Edited by S. C. Piscitelli, K. A. Rodvold, M. P. Pai. New York, Humana Press: p. 1-10.
- R162. Umberg EN, Shader RI, Hsu LKG and Greenblatt DJ. From disordered eating to addiction: The "food drug" in Bulimia Nervosa. Journal of Clinical Psychopharmacology 2012; 32: 376-389.
- R163. Greenblatt DJ and Roth T. Zolpidem for insomnia. Expert Opinion on Pharmacotherapy 2012; 13: 879-893.
- R164. Greenblatt DJ and Zammit GK. Pharmacokinetic evaluation of eszopiclone: Clinical and therapeutic implications. Expert Opinion on Drug Metabolism and Toxicology 2012; 8: 1609-1618.
- R165. Greenblatt DJ. Drug interactions with nutrients and natural products: Mechanisms and clinical importance. In, CRC Handbook of Nutrition and Food, 3<sup>rd</sup> Edition. Edited by C. D. Berdanier, J. T. Dwyer, D. Heber. London, Taylor & Francis Group, 2013, p. 1067-1072.
- R166. Greenblatt HK, Greenblatt DJ. Liver injury associated with ketoconazole: Review of the published evidence. Journal of Clinical Pharmacology 2014; 54: 1321-1329.
- R167. Greenblatt HK, Greenblatt DJ. Altered drug disposition following bariatric surgery: A research challenge. Clinical Pharmacokinetics 2015; 54: 573-579.
- R168. Greenblatt DJ, Harmatz JS. Ritonavir is the best alternative to Ketoconazole as an index inhibitor of Cytochrome P450-3A in drug-drug interaction studies. British Journal of Clinical Pharmacology 2015; 80: 342-350.
- R169. Banankhah PS, Garnick KA, Greenblatt DJ. Ketoconazole-associated liver injury in drug-drug interaction studies in healthy volunteers. Journal of Clinical Pharmacology 2016; 56: 1196-1202.
- R170. Greenblatt HK, Greenblatt DJ. Use of antipsychotics for the treatment of behavioral symptoms of dementia. Journal of Clinical Pharmacology 2016; 56: 1048-1051.



- R171. Greenblatt HK, Greenblatt DJ. Antidepressant-associated hyponatremia in the elderly. Journal of Clinical Psychopharmacology 2016; 36: 545-549.
- R172. Greenblatt DJ. Mechanisms and consequences of drug-drug interactions. Clinical Pharmacology in Drug Development 2017; 6: 118-124.
- R172. Fiaturi N, Greenblatt DJ. Therapeutic drug monitoring of antidepressants. Handbook of Experimental Pharmacology 2019; 250: 115-133.
- R173. Greenblatt DJ, Harmatz JS, Roth T. Zolpidem and gender: Are women really at risk? Journal of Clinical Psychopharmacology 2019; 39: 189-199).

#### EDITORIALS AND COMMENTARY

- E1. Greenblatt DJ: Fatal hypoglycemia occurring after peritoneal dialysis. British Medical Journal 2:270-271, 1972.
- E2. Greenblatt DJ, Greenblatt M: Which drug for alcohol withdrawal? Journal of Clinical Pharmacology 12:429-431, 1972.
- E3. Greenblatt DJ, Duhme DW, Koch-Weser J: Pain and CPK elevation after intramuscular digoxin. New England Journal of Medicine 288:689, 1973.
- E4. Greenblatt DJ, Koch-Weser J: Gynecomastia and impotence complications of spironolactone therapy. Journal of the American Medical Association 223:82, 1973.
- E5. Greenblatt DJ, Greenblatt GR: Chlorpromazine and hyperpyrexia. Clinical Pediatrics 12:504-505, 1973.
- E6. Greenblatt DJ: Insulin sensitivity in renal failure: fatal hypoglycemia following dialysis. New York State Journal of Medicine 74:1040-1041, 1974.
- E7. Greenblatt DJ, Shader RI, Koch-Weser J: Safety of nitrazepam. Lancet 1:315, 1974.
- E8. Greenblatt DJ, Koch-Weser J, Shader RI: Multiple complications and death following protriptyline overdose. Journal of the American Medical Association 229:556-557, 1974.
- E9. Koch-Weser J, Greenblatt DJ: The archaic barbiturate hypnotics. New England Journal of Medicine 291:790-791, 1974.
- E10. Greenblatt DJ: A retrospective case-control study of diseases associated with oral contraceptive use. American Heart Journal 89:677-678, 1975.
- E11. Allen MD, Greenblatt DJ: Role of nurse and pharmacist monitors in the Boston Collaborative Drug Surveillance Program, Drug Intelligence and Clinical Pharmacy 9:648-654, 1975.
- E12. Miller RR, Greenblatt DJ: Peripheral vasodilators. American Journal of Hospital Pharmacy 32:1231-1232, 1975.

- E13. Greenblatt DJ, Allen MD, Koch-Weser J: Accidental iron poisoning: six cases including one fatality. Clinical Pediatrics 15:835-838, 1976.
- E14. Koch-Weser J, Greenblatt DJ: Drug interactions in clinical perspective. European Journal of Clinical Pharmacology 11:405-408, 1977.
- E15. Greenblatt DJ: Whither drug distribution? Anesthesiology 47:405-406, 1977.
- E16. Woo E, Greenblatt DJ: a reevaluation of intravenous quinidine. American Heart Journal 96:829-832, 1978.
- E17. Greenblatt DJ, Gross PL, Harris J, Shader RI: Fatal hyperthermia following haloperidol therapy of sedative-hypnotic withdrawal. Journal of Clinical Psychiatry 39:673-675, 1978.
- E18. Greenblatt DJ, Shader RI: Prazepam, a precursor of desmethyldiazepam. Lancet 1:720, 1978.
- E19. Shader RI, Greenblatt DJ: Clinical indications for plasma level monitoring of psychotropic drugs. American Journal of Psychiatry 136: 1590-1591, 1979.
- E20. Abernethy DR, Greenblatt DJ, Shader RI: Treatment of diazepam withdrawal syndrome with propranolol. Annals of Internal Medicine 94:354-355, 1981.
- E21. Greenblatt DJ, Woo E: The specificity of the extraction fluorescence assay for serum or plasma quinidine. Journal of Clinical Pharmacology 21:333-336, 1981.
- E22. Greenblatt DJ, Sellers EM, Koch-Weser J: Importance of protein binding for the interpretation of serum or plasma drug concentrations. Journal of Clinical Pharmacology 22:259-263, 1982.
- E23. Shader RI, Divoll M, Greenblatt DJ: Kinetics of oxazepam and lorazepam in two subjects with Gilberts Syndrome. Journal of Clinical Psychopharmacology 1:400-402, 1981.
- E24. Ochs HR, Greenblatt DJ, Lauven PM, Stoeckel H, Rommelsheim K: Kinetics of high-dose I.V. diazepam. British Journal of Anesthesia 54:849-852, 1982.
- E25. Shader RI, Greenblatt DJ: New benzodiazepines: temazepam, halazepam, alprazolam, and triazolam. Journal of Clinical Psychopharmacology 2:159-160, 1982.
- E26. Greenblatt DJ, Locniskar A, Shader RI: Halazepam, another precursor of desmethyldiazepam. Lancet 1:1358-1359, 1982.
- E27. Shader RI, Greenblatt DJ: Triazolam and anterograde amnesia: all is not well in the z-zone. Journal of Clinical Psychopharmacology 3:273, 1983.
- E28. Greenblatt DJ: The pharmacokineticization of psychiatry. Journal of Clinical Pharmacology 25:239-240, 1985.

- E29. Divoll M, Greenblatt DJ: The admissibility of positive EMIT results as scientific evidence: counting facts, not heads. Journal of Clinical Psychopharmacology 5:114-116, 1985.
- E30. Greenblatt DJ, Shader RI: Bioequivalence of generic drugs in clinical psychopharmacology. Journal of Clinical Psychopharmacology 7:A21-A23, 1987.
- E31. Greenblatt DJ, Shader RI: Drug absorption rate: a critical component of bioequivalence assessment in psychopharmacology. Journal of Clinical Pharmacology 27:85-86, 1987.
- E32. Ochs HR, Greenblatt DJ: Therapeutic drug monitoring in cardiology: recognizing pitfalls and problems. American Heart Journal 114:204-208, 1987.
- E33. Lister RG, LeDuc BW, Greenblatt DJ, File SE: Poor bioavailability of CGS 8216 in a water/tween vehicle following intraperitoneal injection. Psychopharmacology 91:260-261, 1987.
- E34. Dreyfuss D, Shader RI, Harmatz JS, Greenblatt DJ: Bioequivalence studies in the elderly: a pilot study of two oxazepam dosage forms. Journal of Clinical Psychopharmacology 7:200-201, 1987.
- E35. Kennedy JS, Friedman H, Scavone JM, Harmatz JS, Shader RI, Greenblatt DJ. Effect of blood collection tubes on antidepressant concentrations. Journal of Chromatography 423:373-375, 1987.
- E36. Burstein ES, Friedman H, Greenblatt DJ. Simplified measurement of haloperidol by gas chromatography with nitrogen phosphorous detection. Journal of Chromatography 423:380-382, 1987.
- E37. Greenblatt DJ. Urine drug testing: what does it test? New England Law Review 23:651-666, 1989.
- E38. Greenblatt DJ, Harmatz JS, Friedman H. Arithmetic versus harmonic mean values of elimination half-life: a study of triazolam. Journal of Clinical Pharmacology 29:655-656, 1989.
- E39. Scavone JM, Greenblatt DJ, Blyden GT, Luna BG, Harmatz JS. Acetaminophen pharmacokinetics in women receiving conjugated estrogen. European Journal of Clinical Pharmacology 38:97-98, 1990.
- E40. Greenblatt DJ, Shader RI. Say "no" to drug testing. Journal of Clinical Psychopharmacology 10:157-159, 1990.
- E41. Shader RI, Greenblatt DJ, Harmatz JS, Scavone JM: Alprazolam, panic disorder, and the new 2 mg tablet. Journal of Clinical Psychopharmacology 11:153-154, 1991.
- E42. Shader RI, Greenblatt DJ, Balter MB. Appropriate use and regulatory control of benzodiazepines. Journal of Clinical Pharmacology 31:781-784, 1991.

- E43. Harmatz JS, Greenblatt DJ. Falling off the straight line: some hazards of correlation and regression. Journal of Clinical Psychopharmacology 12:75-78, 1992.
- E44. Greenblatt DJ. Pharmacokinetic principles in clinical medicine (Clinical Therapeutics Conference). Journal of Clinical Pharmacology 32:118-123, 1992.
- E45. Greenblatt DJ, Harmatz JS. Kinetic-dynamic modeling in clinical psychopharmacology. Journal of Clinical Psychopharmacology 13:231-234, 1993.
- E46. Kelly JF, Greenblatt DJ. Rapid and sensitive gas chromatographic determination of estazolam. Journal of Chromatography 621:102-104, 1993.
- E47. von Moltke LL, Greenblatt DJ, Harmatz JS, Shader RI. Cytochromes in psychopharmacology. Journal of Clinical Psychopharmacology 14:1-4, 1994.
- E48. Tsang MW, Shader RI, Greenblatt DJ. Metabolism of haloperidol: clinical implications and unanswered questions. Journal of Clinical Psychopharmacology 14:159-162, 1994.
- E49. Greenblatt DJ. The life of Milton Greenblatt. Journal of Clinical Psychopharmacology 15:155-159, 1995.
- E50. Shader RI, von Moltke LL, Schmider J, Harmatz JS, Greenblatt DJ. The clinician and drug interactions -- an update. Journal of Clinical Psychopharmacology 16:197-201, 1996.
- E51. Greenblatt DJ, von Moltke LL, Schmider J, Harmatz JS, Shader RI. Inhibition of human cytochrome P450-3A isoforms by fluoxetine and norfluoxetine: *in vitro* and *in vivo* studies. Journal of Clinical Pharmacology 36:792-798, 1996.
- E52. Schmider J, Greenblatt DJ, von Moltke LL, Shader RI. Relationship of *in vitro* data on drug metabolism to *in vivo* pharmacokinetics and drug interactions: implications for diazepam disposition in humans. Journal of Clinical Psychopharmacology 16:267-272, 1996.
- E53. Greenblatt DJ, von Moltke LL, Shader RI. The importance of presystemic extraction in clinical psychopharmacology. Journal of Clinical Psychopharmacology 16:417-419, 1996.
- E54. Cutler NR, Sramek JJ, Greenblatt DJ, Chaikin P, Ford N, Lesko LJ, Davis B, Williams RL. Defining the maximum tolerated dose: investigator, academic, industry and regulatory perspectives. Journal of Clinical Pharmacology 37:767-783, 1997.
- E55. Venkatakrisnan K, Greenblatt DJ, von Moltke LL, Shader RI. Alprazolam is another substrate for human cytochrome P450-3A isoforms. Journal of Clinical Psychopharmacology 18:256, 1998.
- E56. Greenblatt DJ. The maturation of clinical pharmacology: recognizing the contributions of Dr. Louis Lasagna. Journal of Clinical Pharmacology 38:572-574, 1998.

- E57. von Moltke LL, Tran TH, Cotreau MM and Greenblatt DJ. Unusually low clearance of two CYP3A substrates, alprazolam and trazodone, in a volunteer subject with wild-type CYP3A4 promotor region. Journal of Clinical Pharmacology 40:200-204, 2000.
- E58. Venkatakrishnan K, von Moltke LL and Greenblatt DJ. CYP2C9 is a principal low-affinity phenacetin O-deethylase: fluvoxamine is not a specific CYP1A2 inhibitor. Drug Metabolism and Disposition 27:1519-1520, 1999.
- E59. von Moltke LL, Greenblatt DJ. Drug transporters in psychopharmacology - Are they important? Journal of Clinical Psychopharmacology 20:291-294, 2000.
- E60. Preskorn SH, Greenblatt DJ and Harvey AT. Lack of effect of sertraline on the pharmacokinetics of alprazolam. Journal of Clinical Psychopharmacology 20:585-586, 2000.
- E61. Greenblatt DJ. Academic perspectives on the MTD: pharmacodynamic end points: maximizing the value of MTD studies. Journal of Clinical Pharmacology 40:1188-1190, 2000.
- E62. von Moltke LL, Greenblatt DJ. Drug transporters revisited. Journal of Clinical Psychopharmacology 21: 1-3, 2001.
- E63. Greenblatt DJ, Patki KC, von Moltke LL and Shader RI. Drug interactions with grapefruit juice: an update. Journal of Clinical Psychopharmacology 21: 357-359, 2001.
- E64. Greenblatt DJ. Obituary: Louis Lasagna, 1923-2003. Clin Pharmacol Ther 74: 594-595, 2003.
- E65. Greenblatt DJ and Shader RI. In memoriam: Louis Lasagna, M.D. 1923-2003. Journal of Clinical Psychopharmacology 24: 243-244, 2004.
- E66. Greenblatt DJ. Pharmacologic management of dental anxiety: conscious versus unconscious sedation. Journal of Clinical Psychopharmacology 2006; 26: 1-3.
- E67. Greenblatt DJ. Preparation of scientific reports on pharmacokinetic drug interaction studies. Journal of Clinical Psychopharmacology 2008; 28: 369-373.
- E68. Greenblatt DJ. Drug-drug noninteractions. Cardiovascular Therapeutics 2009; 27: 226-229.
- E69. Greenblatt DJ, Harmatz JS and Shader RI. Psychotropic drug prescribing in the United States: extent, costs, and expenditures. Journal of Clinical Psychopharmacology 2011; 31: 1-3.

- E70. Greenblatt DJ. Drug interaction studies with CYP3A substrates: How much inhibitor pre-exposure is needed? Clinical Pharmacology in Drug Development 2012; 1: 83-84.
- E71. Greenblatt DJ, Derendorf H. Grapefruit-medication interactions. Canadian Medical Association Journal 2013; 185: 507.
- E72. Greenblatt DJ. The seventy-kilogram fantasy. Clinical Pharmacology in Drug Development 2013; 2: 101-102.
- E73. Greenblatt DJ. Hepatic clearance of drugs in patients with renal insufficiency. Clinical Pharmacology in Drug Development 2013; 2: 295-297.
- E74. Greenblatt DJ. In vitro prediction of clinical drug interactions with CYP3A substrates: We are not there yet. Clinical Pharmacology and Therapeutics 2014; 95: 133-135.
- E75. Greenblatt DJ. The ketoconazole legacy. Clinical Pharmacology in Drug Development 2014; 3: 1-3.
- E76. Shader RI, Greenblatt DJ. The sunshine act. Journal of Clinical Psychopharmacology 2014; 34: 1-2.
- E77. Greenblatt DJ. Sleep-promoting medications: Weighing the hazards of use versus non-use. Clinical Pharmacology in Drug Development 2014; 3: 167-169.
- E78. Greenblatt DJ. Drug interactions with methadone: Time to revise the product label. Clinical Pharmacology in Drug Development 2014; 3: 249-251.
- E79. Greenblatt DJ. Antiretroviral boosting by cobicistat, a structural analog of ritonavir. Clinical Pharmacology in Drug Development 2014; 3: 335-337.
- E80. Greenblatt DJ. Volume of distribution - again. Clinical Pharmacology in Drug Development 2014; 3: 419-420.
- E81. Greenblatt DJ. A tribute to Dr. Hermann R. Ochs, 1943-2013. Journal of Clinical Psychopharmacology 2014; 34: 669-670.
- E82. Greenblatt DJ. Aspartame - Is there new information? Clinical Pharmacology in Drug Development 2015; 4: 1.
- E83. Greenblatt DJ. A soft benzodiazepine. Clinical Pharmacology in Drug Development 2015; 4: 81-82.
- E84. Greenblatt DJ, Peter RM. American College of Clinical Pharmacology commentary on the *Strategic Plan 2010-2014 Progress Report* from the Office of Dietary Supplements, National Institutes of Health. Journal of Clinical Pharmacology 2015; 55: 723-724.

- E85. Harmatz JS, Greenblatt DJ. Regression and correlation. Clinical Pharmacology in Drug Development 2015; 4: 161-162.
- E86. Greenblatt DJ. Clinical Pharmacology in Drug Development - An update. Clinical Pharmacology in Drug Development 2015; 4; 243-244.
- E87. Greenblatt DJ. The pharmacovigilance syndrome. Journal of Clinical Psychopharmacology 2015; 35; 361-363.
- E88. Greenblatt DJ. Evidence-based choice of ritonavir as index CYP3A inhibitor in drug-drug interaction studies. Journal of Clinical Pharmacology 2016; 56: 152-156.
- E89. Greenblatt DJ, Abourjaily PN. Pharmacokinetics and pharmacodynamics for medical students: A proposed course outline. Journal of Clinical Pharmacology 2016; 56: 1180-1195.
- E90. Greenblatt HK, Greenblatt DJ. Meldonium (mildronate): A performance-enhancing drug? Clinical Pharmacology in Drug Development 2016; 5: 167-169.
- E91. Ng I, Greenblatt HK, Greenblatt DJ. Stereo-psychopharmacology: The case of citalopram and escitalopram. Clinical Pharmacology in Drug Development 2016; 5: 331-335.
- E92. Shader RI, Greenblatt DJ. Elements of a good scientific paper. Journal of Clinical Psychopharmacology 2016; 36: 539-541.
- E93. Greenblatt DJ. *Clinical Pharmacology in Drug Development*: Five years in the books. Clinical Pharmacology in Drug Development 2016; 5: 432-434.
- E94. Bertino JS, Greenblatt DJ. The *Journal of Clinical Pharmacology*, *Clinical Pharmacology in Drug Development*, and the impact factor. Journal of Clinical Pharmacology 2017; 57: 545-546 and Clinical Pharmacology in Drug Development 2017; 6: 218-219.
- E95. Greenblatt DJ, Shader RI. The impact non-factor. Journal of Clinical Psychopharmacology 2017; 37: 389-390.
- E96. Greenblatt DJ, Harmatz JS, Shader RI. Update on psychotropic drug prescribing in the United States: 2014-2015. Journal of Clinical Psychopharmacology 2018; 38: 1-4.
- E97. Greenblatt DJ. Opioid prescribing: What are the numbers? Clinical Pharmacology in Drug Development 2018; 7: 6-8.

- E98. Greenblatt HK, Greenblatt DJ. Gabapentin and pregabalin for the treatment of anxiety disorders. Clinical Pharmacology in Drug Development 2018; 7: 228-232.
- E99. Greenblatt DJ, Bertino JS. Opportunistic journals in the clinical pharmacology space. Clinical Pharmacology in Drug Development 2018; 7: 353-357 and Journal of Clinical Pharmacology 2018; 58: 567-571.
- E100. Greenblatt DJ, Mikus G. Ketoconazole and liver injury: A five-year update. Clinical Pharmacology in Drug Development 2019; 8: 6-8.
- E101. Greenblatt HK, Greenblatt DJ. Designer benzodiazepines: Review of published data and public health significance. Clinical Pharmacology in Drug Development 2019; 8: 266-269.
- E102. Kharasch ED, Greenblatt DJ. Methadone disposition: Implementing lessons learned. Journal of Clinical Pharmacology 2019 (EPub).
- E103. Greenblatt DJ. Public health risk of designer psychotropic drugs: Should PHASE be phased in? Clinical Pharmacology and Therapeutics 2019 (in press).



BOOKS

- B1. Greenblatt DJ, Shader RI: Benzodiazepines in Clinical Practice. New York, Raven Press, 1974.
- B2. Miller RR, Greenblatt DJ (eds): Drug Effects in Hospitalized Patients: Experiences of the Boston Collaborative Drug Surveillance Program, 1966-1975. New York, John Wiley and Sons, 1976.
- B3. Miller RR, Greenblatt DJ (eds): Drug Therapy Reviews. New York, Masson Publishing USA, Inc., 1977.
- B4. Davis JM, Greenblatt DJ (eds): Psychopharmacology Update: New and Neglected Areas. New York, Grune and Stratton, 1979.
- B5. Miller RR, Greenblatt DJ (eds): Handbook of Drug Therapy. New York, Elsevier/North Holland, 1979.
- B6. Miller RR, Greenblatt DJ (eds): Drug Therapy Reviews, Vol. 2, New York, Elsevier/North Holland, 1979.
- B7. Jarvik LF, Greenblatt DJ, Harman D (eds): Clinical Pharmacology and the Aged Patient. New York, Raven Press, 1981.
- B8. Usdin E (ed), with the assistance of Davis JM, Glassman A, Greenblatt DJ, Perel JM, Shader RI: Clinical Pharmacology in Psychiatry. New York, Elsevier, 1981.
- B9. Usdin E, Skolnick P, Tallman JF, Greenblatt DJ, Paul SM (eds): Pharmacology of Benzodiazepines. London, MacMillan Press, 1982.
- B10. Greenblatt DJ, Shader RI: Pharmacokinetics in Clinical Practice. Philadelphia, WB Saunders, 1985.
- B11. Ciraulo DA, Shader RI, Greenblatt DJ, Creelman W (eds): Drug Interactions in Psychiatry. Baltimore, Williams and Wilkins, 1989. Second Edition, 1995.
- B12. Jacobson SA, Pies RW, Greenblatt DJ: Handbook of Geriatric Psychopharmacology. Washington DC, American Psychiatric Publishing, Inc., 2002.